MSI
MICRO-STAR INTERNATIONAL

# Media Live

## MS-6421 (V1.X) Media Center

G52-64211X1

## FCC-B Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the measures listed below.

CE N1996

= Reorient or relocate the receiving antenna.
= Increase the separation between the equipment and receiver.
= Connec the equipment into an outlet on a circuit different from that to which the receiver is connected.
= Consult the dealer or an experienced radio/television technician for help.

**Notice 1**
The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
**Notice 2**
Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

**VOIR LA NOTICE D'INSTALLATION AVANT DE RACCORDER AU RESEAU.**

FC **Micro-Star International**
**MS-6421**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

## Trademark

All trademarks are the properties of their respective owners.
Intel® and Pentium® are registered trademarks of Intel Corporation.
PS/2 and OS®/2 are registered trademarks of International Business Machines Corporation.
Windows® 95/98/2000/NT/XP are registered trademarks of Microsoft Corporation.
Netware® is a registered trademark of Novell, Inc.
Award® is a registered trademark of Phoenix Technologies Ltd.
AMI® is a registered trademark of American Megatrends Inc.
AMD® is a registered trademark of Advanced Micro Devices, Inc.
NVIDIA® is a registered trademark of NVIDIA Corporation.

## U.S. Patent Numbers

**4,631,603; 4,819,098; 4,907,093; 5,315,448; and 6,516,132.**

This product incorporates copyright protection technology that is protected by U.S. patents and other intellectual property rights. Use of this copyright protection technology must be authorized by Macrovision, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision. Reverse engineering or disassembly is prohibited.

## Revision History

| Revision | Revision History | Date |
|---|---|---|
| V1.0 | First release | November 2006 |

## Copyright Notice

The material in this document is the intellectual property of **MICRO-STAR INTERNATIONAL**. We take every care in the preparation of this document, but no guarantee is given as to the correctness of its contents. Our products are under continual improvement and we reserve the right to make changes without notice.

## Safety Instructions

1. Always read the safety instructions carefully.
2. Keep this User's Manual for future reference.
3. Keep this equipment away from humidity.
4. Lay this equipment on a reliable flat surface before setting it up.
5. The openings on the enclosure are for air convection hence protects the equipment from overheating. DO NOT COVER THE OPENINGS.
6. Power supply rating: 100-240V ac, 4-2A, 50-60Hz.
7. Place the power cord such a way that people can not step on it. Do not place anything over the power cord.
8. Always Unplug the Power Cord before inserting any add-on card or module.
9. All cautions and warnings on the equipment should be noted.
10. Never pour any liquid into the opening that could damage or cause electrical shock.
11. If any of the following situations arises, get the equipment checked by service personnel:
    - The power cord or plug is damaged.
    - Liquid has penetrated into the equipment.
    - The equipment has been exposed to moisture.
    - The equipment does not work well or you can not get it work according to User's Manual.
    - The equipment has dropped and damaged.
    - The equipment has obvious sign of breakage.
12. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT UNCONDITIONED, STORAGE TEMPERATURE ABOVE $40^0$ C ($102^0$F), IT MAY DAMAGE THE EQUIPMENT.

**CAUTION:** Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

廢電池請回收

For better environmental protection, waste batteries should be collected separately for recycling or special disposal.

## Warning:

1. For every changes in powercord's usage, please use an approved power cord with condition greater or equal to H05VV-F,3G , 0.75mm$^2$.
2. Internal part is hazardous moving parts, please keep fingers and other body parts away.
3. For pluggable equipment, the socket-outlet shall be installed near the equipment and shall be easily accessible.
4. Do not disable the protective earth pin from the plug, the equipment must be connected to an earthed mains socket-outlet.

***1. The optical storage devices are classified as a Class 1 Laser products. Use of controls or adjustments or performance of procedures other than those specified***
***2. Do not touch the lens inside the drive***

## WEEE Statement

### ENGLISH

**To protect the global environment and as an environmentalist, MSI must remind you that...**

**Under the European Union ("EU") Directive on Waste Electrical and Electronic Equipment, Directive 2002/96/EC, which takes effect on August 13, 2005, products of "electrical and electronic equipment" cannot be discarded as municipal waste anymore and manufacturers of covered electronic equipment will be obligated to take back such products at the end of their useful life. MSI will comply with the product take back requirements at the end of life of MSI-branded products that are sold into the EU. You can return these products to local collection points.**

### DEUTSCH

**Hinweis von MSI zur Erhaltung und Schutz unserer Umwelt**

**Gemäß der Richtlinie 2002/96/EG über Elektro- und Elektronik-Altgeräte dürfen Elektro- und Elektronik-Altgeräte nicht mehr als kommunale Abfälle entsorgt werden. MSI hat europaweit verschiedene Sammel- und Recyclingunternehmen beauftragt, die in die Europäische Union in Verkehr gebrachten Produkte, am Ende seines Lebenszyklus zurückzunehmen. Bitte entsorgen Sie dieses Produkt zum gegebenen Zeitpunkt ausschliesslich an einer lokalen Altgerätesammelstelle in Ihrer Nähe.**

### FRANÇAIS

**En tant qu'écologiste et afin de protéger l'environnement, MSI tient à rappeler ceci...**

**Au sujet de la directive européenne (EU) relative aux déchets des équipement électriques et électroniques, directive 2002/96/EC, prenant effet le 13 août 2005, que les produits électriques et électroniques ne peuvent être déposés dans les décharges ou tout simplement mis à la poubelle. Les fabricants de ces équipements seront obligés de récupérer certains produits en fin de vie. MSI prendra en compte cette exigence relative au retour des produits en fin de vie au sein de la communauté européenne. Par conséquent vous pouvez retourner localement ces matériels dans les points de collecte.**

### РУССКИЙ

**Компания MSI предпринимает активные действия по защите окружающей среды, поэтому напоминаем вам, что....**

**В соответствии с директивой Европейского Союза (ЕС) по предотвращению загрязнения окружающей среды использованным электрическим и электронным оборудованием (директива WEEE 2002/96/EC), вступающей в силу 13 августа 2005 года, изделия, относящиеся к электрическому и электронному оборудованию, не могут рассматриваться как бытовой мусор, поэтому производители вышеперечисленного электронного оборудования обязаны принимать его для переработки по окончании срока службы. MSI обязуется соблюдать требования по приему продукции, проданной под маркой MSI на территории ЕС, в переработку по окончании срока службы. Вы можете вернуть эти изделия в специализированные пункты приема.**

## ESPAÑOL

**MSI como empresa comprometida con la protección del medio ambiente, recomienda:**

**Bajo la directiva 2002/96/EC de la Unión Europea en materia de desechos y/o equipos electrónicos, con fecha de rigor desde el 13 de agosto de 2005, los productos clasificados como "eléctricos y equipos electrónicos" no pueden ser depositados en los contenedores habituales de su municipio, los fabricantes de equipos electrónicos, están obligados a hacerse cargo de dichos productos al termino de su período de vida. MSI estará comprometido con los términos de recogida de sus productos vendidos en la Unión Europea al final de su periodo de vida. Usted debe depositar estos productos en el punto limpio establecido por el ayuntamiento de su localidad o entregar a una empresa autorizada para la recogida de estos residuos.**

## NEDERLANDS

**Om het milieu te beschermen, wil MSI u eraan herinneren dat....**

**De richtlijn van de Europese Unie (EU) met betrekking tot Vervuiling van Electrische en Electronische producten (2002/96/EC), die op 13 Augustus 2005 in zal gaan kunnen niet meer beschouwd worden als vervuilling.**

**Fabrikanten van dit soort producten worden verplicht om producten retour te nemen aan het eind van hun levenscyclus. MSI zal overeenkomstig de richtlijn handelen voor de producten die de merknaam MSI dragen en verkocht zijn in de EU. Deze goederen kunnen geretourneerd worden op lokale inzamelingspunten.**

## SRPSKI

**Da bi zaštitili prirodnu sredinu, i kao preduzeće koje vodi računa o okolini i prirodnoj sredini, MSI mora da vas podesti da...**

**Po Direktivi Evropske unije ("EU") o odbačenoj ekektronskoj i električnoj opremi, Direktiva 2002/96/EC, koja stupa na snagu od 13. Avgusta 2005, proizvodi koji spadaju pod "elektronsku i električnu opremu" ne mogu više biti odbačeni kao običan otpad i proizvođači ove opreme biće prinuđeni da uzmu natrag ove proizvode na kraju njihovog uobičajenog veka trajanja. MSI će poštovati zahtev o preuzimanju ovakvih proizvoda kojima je istekao vek trajanja, koji imaju MSI oznaku i koji su prodati u EU. Ove proizvode možete vratiti na lokalnim mestima za prikupljanje.**

## POLSKI

**Aby chronić nasze środowisko naturalne oraz jako firma dbająca o ekologię, MSI przypomina, że...**

**Zgodnie z Dyrektywą Unii Europejskiej ("UE") dotyczącą odpadów produktów elektrycznych i elektronicznych (Dyrektywa 2002/96/EC), która wchodzi w życie 13 sierpnia 2005, tzw. "produkty oraz wyposażenie elektryczne i elektroniczne " nie mogą być traktowane jako śmieci komunalne, tak więc producenci tych produktów będą zobowiązani do odbierania ich w momencie gdy produkt jest wycofywany z użycia. MSI wypełni wymagania UE, przyjmując produkty (sprzedawane na terenie Unii Europejskiej) wycofywane z użycia. Produkty MSI będzie można zwracać w wyznaczonych punktach zbiorczych.**

## TÜRKÇE

**Çevreci özelliğiyle bilinen MSI dünyada çevreyi korumak için hatırlatır:**
**Avrupa Birliği (AB) Kararnamesi Elektrik ve Elektronik Malzeme Atığı, 2002/96/EC Kararnamesi altında 13 Ağustos 2005 tarihinden itibaren geçerli olmak üzere, elektrikli ve elektronik malzemeler diğer atıklar gibi çöpe atılamayacak ve bu elektonik cihazların üreticileri, cihazların kullanım süreleri bittikten sonra ürünleri geri toplamakla yükümlü olacaktır. Avrupa Birliği'ne satılan MSI markalı ürünlerin kullanım süreleri bittiğinde MSI ürünlerin geri alınması isteği ile işbirliği içerisinde olacaktır. Ürünlerinizi yerel toplama noktalarına bırakabilirsiniz.**

## ČESKY

**Záleží nám na ochraně životního prostředí - společnost MSI upozorňuje...**
**Podle směrnice Evropské unie ("EU") o likvidaci elektrických a elektronických výrobků 2002/96/EC platné od 13. srpna 2005 je zakázáno likvidovat "elektrické a elektronické výrobky" v běžném komunálním odpadu a výrobci elektronických výrobků, na které se tato směrnice vztahuje, budou povinni odebírat takové výrobky zpět po skončení jejich životnosti. Společnost MSI splní požadavky na odebírání výrobků značky MSI, prodávaných v zemích EU, po skončení jejich životnosti. Tyto výrobky můžete odevzdat v místních sběrnách.**

## MAGYAR

**Annak érdekében, hogy környezetünket megvédjük, illetve környezetvédőként fellépve az MSI emlékezteti Önt, hogy ...**
**Az Európai Unió („EU") 2005. augusztus 13-án hatályba lépő, az elektromos és elektronikus berendezések hulladékairól szóló 2002/96/EK irányelve szerint az elektromos és elektronikus berendezések többé nem kezelhetőek lakossági hulladékként, és az ilyen elektronikus berendezések gyártói kötelessé válnak az ilyen termékek visszavételére azok hasznos élettartama végén. Az MSI betartja a termékvisszavétellel kapcsolatos követelményeket az MSI márkanév alatt az EU-n belül értékesített termékek esetében, azok élettartamának végén. Az ilyen termékeket a legközelebbi gyűjtőhelyre viheti.**

## ITALIANO

**Per proteggere l'ambiente, MSI, da sempre amica della natura, ti ricorda che....**
**In base alla Direttiva dell'Unione Europea (EU) sullo Smaltimento dei Materiali Elettrici ed Elettronici, Direttiva 2002/96/EC in vigore dal 13 Agosto 2005, prodotti appartenenti alla categoria dei Materiali Elettrici ed Elettronici non possono più essere eliminati come rifiuti municipali: i produttori di detti materiali saranno obbligati a ritirare ogni prodotto alla fine del suo ciclo di vita. MSI si adeguerà a tale Direttiva ritirando tutti i prodotti marchiati MSI che sono stati venduti all'interno dell'Unione Europea alla fine del loro ciclo di vita. È possibile portare i prodotti nel più vicino punto di raccolta.**

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# Chapter 1
# Getting Started

Congratulations for purchasing MSI® Media Live (MS-6421) Media Center. This Media Center is your best Media Center choice. With the fantastic appearance and small form factor, it can easily be set anywhere. The feature packed platform also gives you an exciting Media Center experience.

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# Mainboard Specifications

**Processor Support**

- Supports AMD® Athlon64 X2 / Athlon64 processors in the socket AM2 (940-pin) package.
(For the latest information about CPU, please visit *http://www.msi.com.tw/program/products/slim_pc/slm/pro_slm_cpu_support.php*)

**Supported FSB**

- HyperTransport supporting speed up to 1GHz (2000MT/s)

**Chipset**

- North Bridge: nVidia® C51PVG Chipset
- South Bridge: nVidia® MCP51 Chipset

**Memory Support**

- Supports DDR II 400/533/667/800 SDRAM (4GB Max)
- 4 DDR II DIMMs (240-pin, non-ECC / 1.8V)
(For more information on compatible components, please visit *http://www.msi.com.tw/program/products/slim_pc/slm/pro_slm_cpu_support.php)*

**LAN**

- Supports 10/100/1000 Fast Ethernet LAN by Vitesse® VSC8601

**IEEE 1394**

- Chip integrated by VIA® VT 6308P
- Transfer rate is up to 400Mbps

**Audio**

- Chip integrated by Realtek® ALC883
- Flexible 8-channel high definition audio with jack sensing
- Compliant with Azalia V1.0 Spec

**IDE**

- Supports 2 IDE ports by nVidia® MCP51
- Supports Ultra DMA 66/100/133 mode
- Supports PIO, Bus Master operation mode

**SATA**

- Supports 4 SATA II ports by nVidia® MCP51
(2 SATA II ports only for Media Live)
- Supports storage and data transfers at up to 300 MB/s

**Floppy**

- 1 floppy port
- Supports 1 FDD with 360K, 720K, 1.2M, 1.44M and 2.88Mbytes

## Connectors

- **Back Panel**
  - 3 Component Video Out (RGB)
  - 8 Audio RCA Out (for 8-channel audio support)
  - 1 Digital Video Out (HDMI)
  - 4 USB 2.0 Ports
  - 1 IEEE 1394 Port
  - 3 AV Out
  - 1 S-Video Out
  - 1 SCART Out
  - 1 VGA Out (D-Sub)
  - 1 LAN Jack (RJ45)
  - 1 Digital Audio Out (Coaxial)
  - 1 Digital Audio Out (Optical)
- **Front Panel**
  - 1 Headphone (Green)
  - 1 Microphone (Pink)
  - 1 IEEE 1394 Port
  - 2 USB 2.0 Ports
  - 4 Slots 3.5” Memory Card Reader
- **On-Board Pinheaders**
  - 2 USB 2.0 Pinheaders
  - 1 CD-In Pinheader
  - 1 TV-Out Pinheader
  - 2 SPDIF-Out/In Pinheaders
  - 1 VGA Pinheader

## Slots

- 1 PCI slot
- Supports 3.3V / 5V PCI bus Interface

## Form Factor

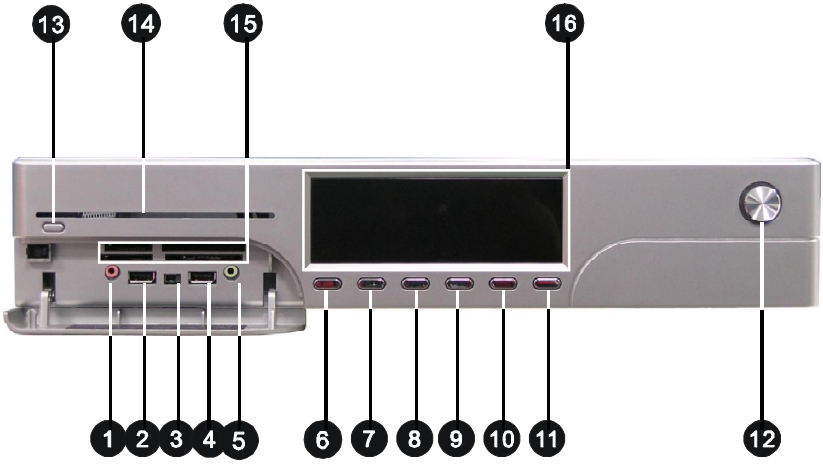
- Standard Micro-ATX (24.4 cm X 24.4 cm)

## Mounting

- 8 mounting holes

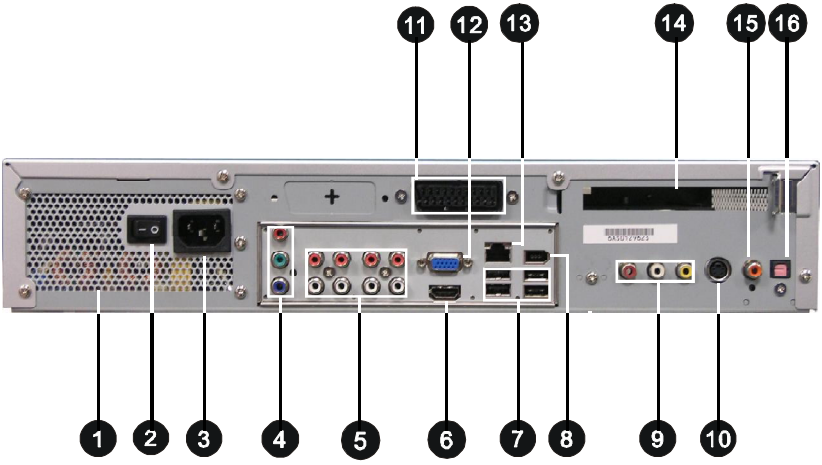
# System Configuration

## ► Front Panel




1. Microphone (Pink)
2. USB 2.0 Port
3. IEEE 1394 Port
4. USB 2.0 Port
5. Headphone (Green)
6. Stop Button
7. Play Button
8. Replay Button
9. Rew Button
10. Fwd Button
11. Skip Button
12. On / Standby
13. Eject Button (for ODD)
14. Slim Slot-In Optical Disk Drive
15. Memory Card Reader Drive
16. Integrated VFD Module

## ► Back Panel



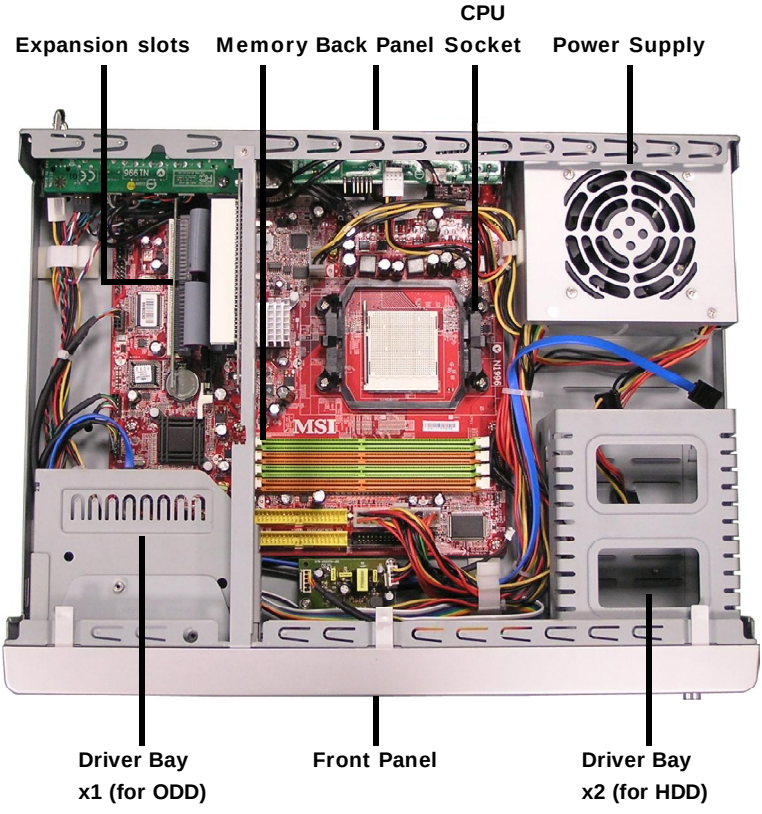

1. Ventilation Hole
2. Power Switch
3. Power Jack (AC In)
4. Component Video Out
5. Audio RCA Out
6. Digital Video Out (HDMI)
7. USB 2.0 Ports
8. IEEE 1394 Port
9. AV Out
10. S-Video Out
11. SCART Out
12. VGA Out (D-Sub)
13. LAN Jack (RJ45)
14. PCI Expansion Slot
15. Digital Audio Out (Coaxial)
16. Digital Audio Out (Optical)

## ►Chassis Design

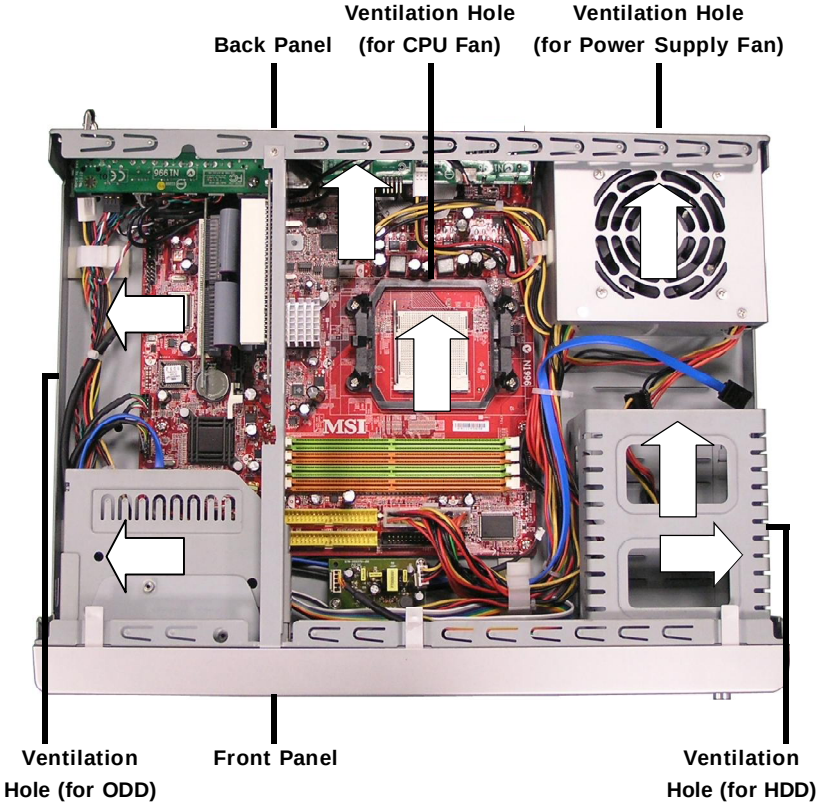
- Dimension: 320mm (D) x 430mm (W) x 80mm (H) (with Bezel)
- 3.5" Memory Card Reader with four slots supports MS(MS-Pro), CF/MD (CompactFlash I/II / Micro drive), SD/MMC, SM(SmartMedia)
- Minimized screw structure
- Detachable bay housing
- Multiple ventilation holes

**1.System Ventilation Hole(for ODD)**
**2.Power Supply Fan Ventilation Hole**
**3.CPU Fan Ventilation Hole**
**4.System Ventilation Hole(for HDD)**
**5.System Ventilation Hole(for HDD)**
**6.System Ventilation Hole(for HDD)**

## ▶ System Picture



## ▶ System Air Flow Direction

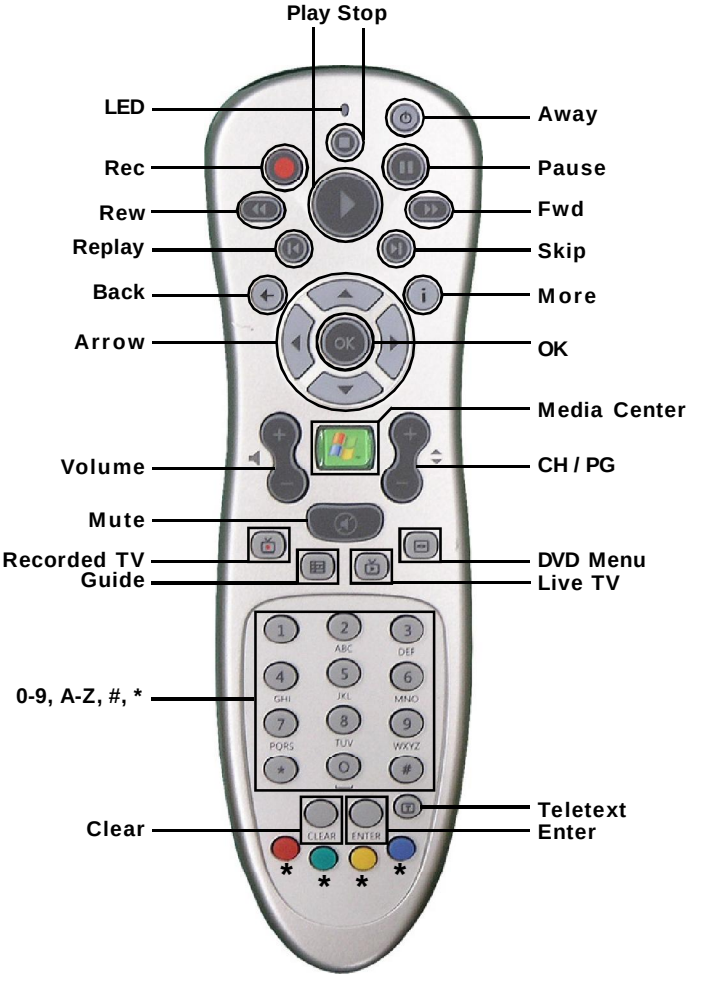



**WARNING !**
KEEP OTHER OBJECTS AWAY FROM THIS VENTILATION HOLE AT LEAST 2.5CM AND ABOVE

After the installation is completed, please keep other objects away from the ventilation hole at least 2.5cm and above. Do not block the ventilation hole.

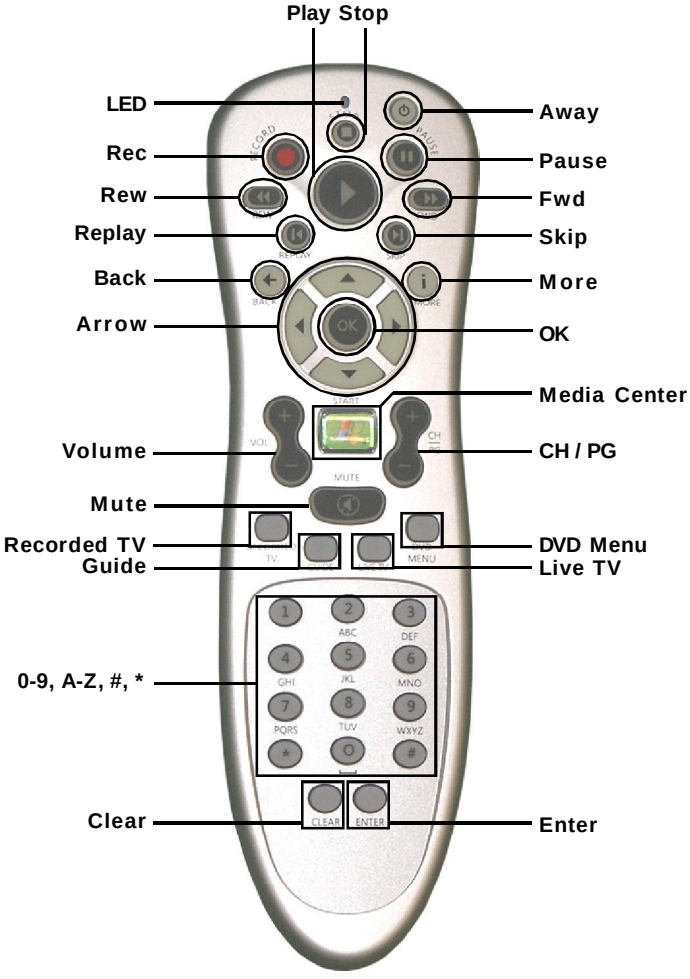
# Remote Control

## ► Remote Control Buttons (for European users)




* Function will be shown in the red / green / yellow / blue area at the bottom of screen. The information provided varies based on your area and television network.

## ▶ Remote Control Buttons (for USA users)



# Chapter 2
# Hardware Setup

This chapter provides you with the information about hardware setup procedures. While doing the installation, be careful in holding the components and follow the installation procedures. For some components, if you install in the wrong orientation, the components will not work properly.

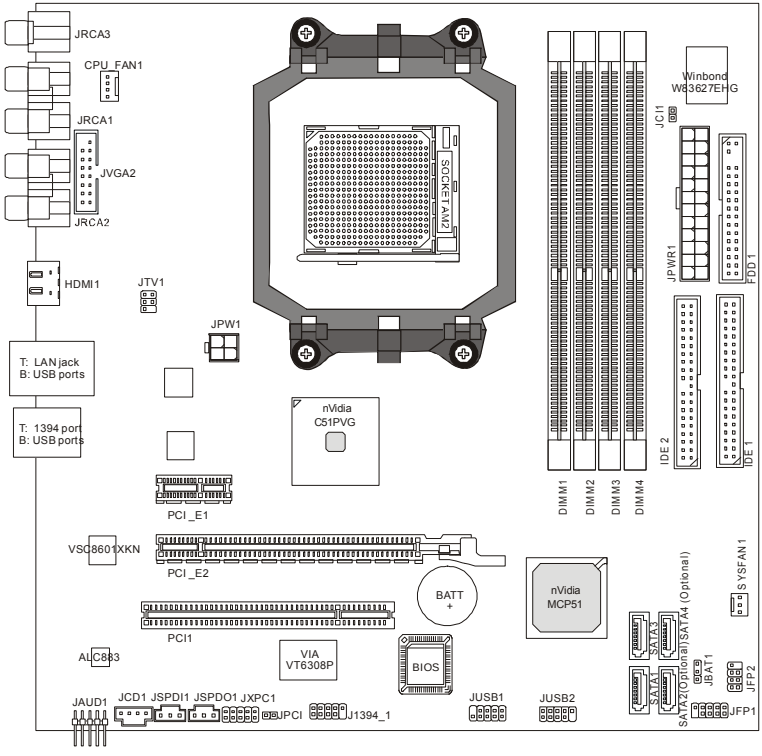
Use a grounded wrist strap before handling computer components. Static electricity may damage the components.

**ONLY FOR SERVICE PERSONEL**

**Always unplug the power cord before inserting any add-on card or module.**

MSI
MICRO-STAR INTERNATIONAL

# Mainboard Layout




**MS-7329 (V1.0)**
**Standard Micro-ATX Mainboard**

# CPU (Central Processing Unit)

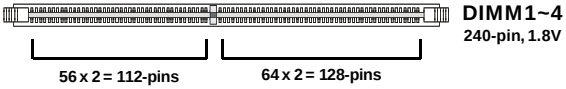
The mainboard supports AMD® Athlon64 X2 / Athlon64 & Athlon FX processors. The mainboard uses a CPU socket called Socket AM2 (940-pin) for easy CPU installation. When you are installing the CPU, make sure the CPU has a heat sink and a cooling fan attached on the top to prevent overheating. If you do not have the heat sink and cooling fan, contact your dealer to purchase and install them before turning on the computer. (For the latest information about CPU, please visit *http://www.msi.com.tw/program/products/mainboard/mbd/pro_mbd_cpu_support.php)*

**Important**

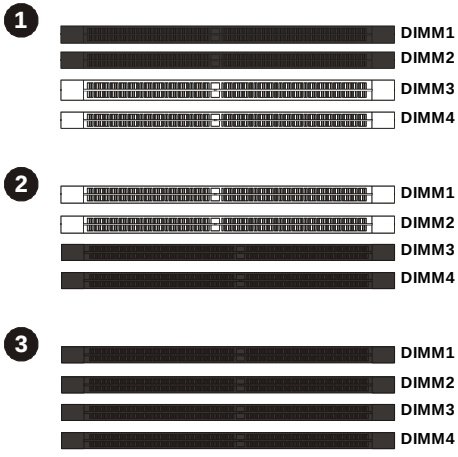
1. *Overheating will seriously damage the CPU and system. Always make sure the cooling fan can work properly to protect the CPU from overheating.*
2. *Make sure that you apply an even layer of heat sink paste (or thermal tape) between the CPU and the heat sink to enhance heat dissipation.*
3. *While replacing the CPU, always turn off the ATX power supply or unplug the power supply's power cord from the grounded outlet first to ensure the safety of CPU.*

# Memory

The mainboard provides 4 slots for 240-pin non-ECC DDR II 400/533/667/800 DIMMs, which supports the memory size up to 4GB. Since DDR II modules are not interchangeable with DDR I and the DDR II standard is not backward compatible, you should always install DDR II memory module in the DDR II slot (DIMM1~DIMM4). Otherwise, you are not able to boot up your system and your mainboard might be damaged. (For the updated supporting memory modules, please visit *http://www.msi.com.tw/program/products/mainboard/mbd/pro_mbd_trp_list.php)*




## Dual-Channel Memory Population Rules

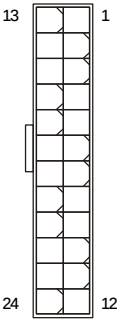


# Power Supply

The mainboard supports ATX power supply for the power system. Before inserting the power supply connector, always make sure that all components are installed properly to ensure that no damage will be caused.

## ATX 24-Pin Power Connector: JPWR1

This connector allows you to connect an ATX 24-pin power supply. To connect the ATX 24-pin power supply, make sure the plug of the power supply is inserted in the proper orientation and the pins are aligned. Then push down the power supply firmly into the connector. You may use the 20-pin ATX power supply as you like. If you'd like to use the 20-pin ATX power supply, please plug your power supply along with pin 1 & pin 13 (refer to the image at the right hand). There is also a foolproof design on pin 11, 12, 23 & 24 to avoid wrong installation.



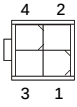

JPWR1

**Pin Definition**

| PIN | SIGNAL | PIN | PINSIGNAL |
|---|---|---|---|
| 1 | +3.3V | 13 | +3.3V |
| 2 | +3.3V | 14 | -12V |
| 3 | GND | 15 | GND |
| 4 | +5V | 16 | PS-ON# |
| 5 | GND | 17 | GND |
| 6 | +5V | 18 | GND |
| 7 | GND | 19 | GND |
| 8 | PWROK | 20 | Res |
| 9 | 5VSB | 21 | +5V |
| 10 | +12V | 22 | +5V |
| 11 | +12V | 23 | +5V |
| 12 | +3.3V | 24 | GND |

## ATX 12V Power Connector: JPW1

This 12V power connector JPW1 is used to provide power to the CPU.




**JPW1**

**Pin Definition**

| PIN | SIGNAL |
|---|---|
| 1 | GND |
| 2 | GND |
| 3 | 12V |
| 4 | 12V |

**Important**

*1. Make sure that all the connectors are connected to proper ATX power supplies to ensure stable operation of the mainboard.*
*2. Power supply of 350 watts (and above) is highly recommended for system stability.*

## Important Notification about Power Issue

nForce chipset is very sensitive to ESD (Electrostatic Discharge), therefore this issue mostly happens while the users intensively swap memory modules under S5 (power-off) states, and the power code is plugged while installing modules. Due to several pins are very sensitive to ESD, so this kind of memory-replacement actions might cause system chipset unable to boot. Please follow the following solution to avoid this situation. Unplug the AC power cable (shown in figure 1) or unplug the JPWR1 & JPW1 power connectors (shown in figure 2 & figure 3) before the 1st installation or during system upgrade procedure.

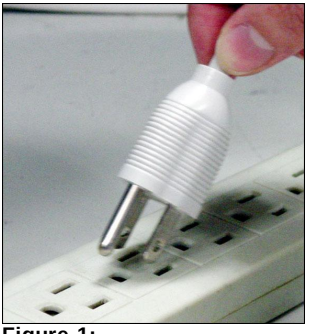


**Figure 1:**
**Unplug the AC power cable**

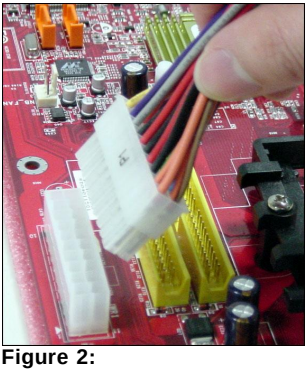


**Figure 2:**
**Unplug the JPWR1 power conn.**

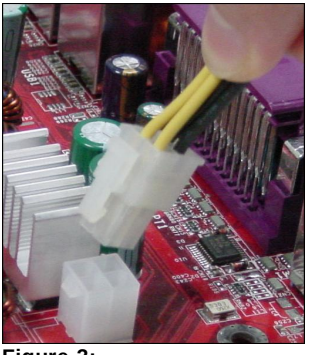
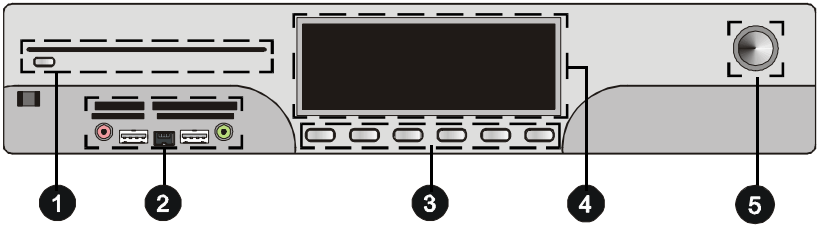


**Figure 3:**
**Unplug the JPW1 power conn.**

## Front Panel

**The following illustration shows the Media Live front panel:**



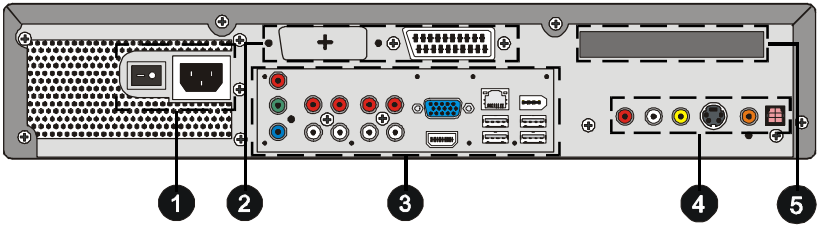

| Item | | Function | Comments |
|---|---|---|---|
| 1 | | CD / DVD | CD / DVD Player / Recorder. |
| | | Eject Button | Push the Eject Button to open / close. |
| 2 | | 7-in-1 Memory Card Reader | MS(MS-Pro), CF/MD(CompactFlash I/II / Micro drive), SD/MMC, SM(SmartMedia). |
| | | Microphone | In 1/8-inch mini-jack. (Pink) |
| | | USB 2.0 | Two 4-pin USB 2.0 ports. (High Speed) |
| | | IEEE 1394 | FireWire, 4-pin input / output for Digital Video. |
| | | Headphone | Out 1/8-inch jack. (Green) |
| 3 | | Stop Button | Stops the selected media. |
| | | Play Button | Plays the selected media. |
| | | Replay Button | Rewinds live or recorded TV for 8 seconds, or beginning of music track , or DVD chapter. |

| | | | |
|---|---|---|---|
| | | Rew Button | (Rewind) Moves the media backward. |
| | | Fwd Button | (Fast-forward) Moves media forward. |
| | | Skip Button | Moves media forward. |
| 4 | | Integrated VFD Module | Media information display. |
| 5 | | On / Standby | Power Button and LED.<br>Press and hold button for seconds to turn off. Push for Away Mode. |

∗These illustrations are for your reference only. Your model might not have all features.

## Back Panel

**The following illustration shows the Media Live back panel:**




| Item | | Connector | Type |
|---|---|---|---|
| 1 | | Power Switch | Left side: On<br>Right side: Off |
| | | Power Jack<br>(AC In) | AC 110-240V,<br>50-60 Hz. |
| 2 | | Expansion Slot | For expansion use only . |
| | | SCART Out | For Europe Specification. |
| 3 | | Component<br>Vedio Out (RGB) | 3 RCA jacks.<br>(interlaced or progressive scan)<br><br>Red colour: Pr<br>Green colour: Y<br>Blue colour: Pb<br>(not all modes support DVD playback due to content protection ) |
| | | Audio RCA Out | 8 RCA jacks. (Audio 7.1 Pre-Out)<br>1. SIDE SURROUND<br>2. FRONT<br>3. REAR SURROUND<br>4. CENTER / SUBWOOFER |
| | | VGA Out | 15-pin D-sub |

| | | | |
|---|---|---|---|
| | | Digital Video Out | HDMI (High Definition Multimedia Interface Support) |
| | | USB 2.0 | Four 4-pin USB 2.0 ports (High Speed) |
| | | LAN (RJ45) | Ethernet 10/100/100/1000 |
| | | IEEE1394 | 6-pin DV input / output for Digital Video or other device |
| 4 | | AV Out | 3 RCA jacks<br><br>Red colour: Audio Out (Right)<br>White colour: Audio Out (Left)<br>Yellow colour: Video Out |
| | | S-Video Out | Y/C video Analog 4-pin |
| | | Digital Audio Out | Coaxial S/PDIF Input / Output |
| | | Digital Audio Out | Optical S/PDIF Input / Output |
| 5 |  | PCI Expansion Slot | For PCI expansion use only. |

∗These illustrations are for your reference only. Your model might not have all features.

# Connectors

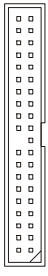
## Floppy Disk Drive Connector: FDD1

This standard FDD1 connector supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types.

FDD1

## ATA133 Hard Disk Connectors: IDE1 & IDE2

The mainboard has a 32-bit Enhanced PCI IDE and Ultra DMA 66/100/133 controller that provides PIO mode 0~4, Bus Master, and Ultra DMA 66/100/133 function. You can connect hard disk drives, CD-ROM and other IDE devices. The Ultra ATA133 interface boosts data transfer rates between the computer and the hard drive up to 133 megabytes (MB) per second. The new interface is one-third faster than earlier record-breaking Ultra ATA100 technology and is backwards compatible with the existing Ultra ATA interface.



IDE1 & IDE2

**▶ IDE1 (Primary IDE Connector)**

The first hard drive should always be connected to IDE1. IDE1 can connect a Master and a Slave drive. You must configure the second hard drive to Slave mode by setting the jumper accordingly.

**▶ IDE2 (Secondary IDE Connector)**

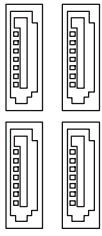
IDE2 can also connect a Master and a Slave drive.

**Important**

*If you install two hard disks on cable, you must configure the second drive to Slave mode by setting its jumper. Refer to the hard disk documentation supplied by hard disk vendors for jumper setting instructions.*

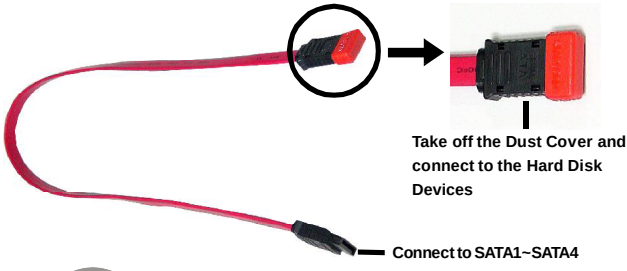
## Serial ATA II Connectors: SATA1~SATA4

SATA1~SATA4 are high-speed SATA II interface ports. Each supports data rates of 300 MB/s and is fully compliant with Serial ATA specifications. Each Serial ATA connector can connect to 1 hard disk device. (For Media Live, 2 SATA II ports can be used only because of the ME assembly status.)



**SATA1~SATA4**
(SATA2/4 are optional)

▶ **Serial ATA cable (Blue Colour)**

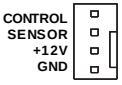



**Important**

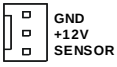
*Please do not fold the Serial ATA cable into 90-degree angle. Otherwise, data loss may occur during transmission.*

## Fan Power Connectors: CPU_FAN1 & SYSFAN1

The fan power connectors support system cooling fan with +12V. When connecting the wire to the connectors, always take note that the red wire is the positive and should be connected to the +12V, the black wire is Ground and should be connected to GND. If the mainboard has a System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.




CPU_FAN1



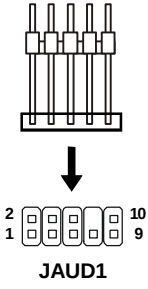

SYSFAN1

**Important**

*Always consult the vendors for proper CPU cooling fan installtion.*

## Front Panel Audio Connector: JAUD1

The JAUD1 front panel audio connector allows you to connect the front panel audio and is compliant with Intel® Front Panel I/O Connectivity Design Guide.



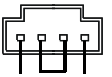

JAUD1

**Pin Definition**

| PIN | SIGNAL | PIN | SIGNAL |
|---|---|---|---|
| 1 | FRONT MIC_L | 2 | GND |
| 3 | FRONT MIC_R | 4 | FRONT IO |
| 5 | LINE OUT R | 6 | MIC JD |
| 7 | AZ FRONT JD | 8 | NO PIN |
| 9 | LINE OUT L | 10 | LINE OUT JD |

## CD-In Connector: JCD1

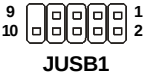
This connector is provided for CD-ROM audio.




JCD1

## Front USB Connectors: JUSB1 & JUSB2

The mainboard provides USB 2.0 pinheaders (optional USB 2.0 bracket available) that are compliant with Intel® I/O Connectivity Design Guide. USB 2.0 technology increases data transfer rate up to a maximum throughput of 480Mbps, which is 40 times faster than USB 1.1, and is ideal for connecting high-speed USB interface peripherals such as **USB HDD**, **digital cameras**, **MP3 players**, **printers**, **modems and the like**.




JUSB1

JUSB2

**Pin Definition**

| PIN | SIGNAL | PIN | SIGNAL |
|---|---|---|---|
| 1 | VCC | 2 | VCC |
| 3 | USB0- | 4 | USB1- |
| 5 | USB0+ | 6 | USB1+ |
| 7 | GND | 8 | GND |
| 9 | Key (no pin) | 10 | USBOC |

**Important**

*Note that the pins of VCC and GND must be connected correctly to avoid possible damage.*

## IEEE 1394 Connector: J1394_1 (Optional)

The mainboard provides IEEE1394 pinheader that allow you to connect IEEE 1394 ports via an external IEEE1394 bracket (optional).

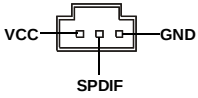
J1394_1

**Pin Definition**

| PIN | SIGNAL | PIN | SIGNAL |
|---|---|---|---|
| 1 | TPA+ | 2 | TPA- |
| 3 | Ground | 4 | Ground |
| 5 | TPB+ | 6 | TPB- |
| 7 | Cable power | 8 | Cable power |
| 9 | Key (no pin) | 10 | Ground |

## SPDIF-Out/In Connectors: JSPDO1 & JSPDI1 (SPDIF-In is Optional)

These connectors are used to connect SPDIF (Sony & Philips Digital Interconnect Format) interface for digital audio transmission. The JSPDO1 is for SPDIF-Out and the JSPDI1 is for SPDIF-In.




JSPDO1 JSPDI1

## TV-Out Connector: JTV1 (Optional)

The mainboard optionally provides a TV-Out connector for you to attach a TV-Out bracket that integrated HDTV-out. The TV-Out bracket offers two types of TV-Out connectors: S-Video and RCA Composite connectors. Select the appropriate one to connect to the standard television or the HDTV (High-Definition TeleVision) and it will be able to display PC's information.

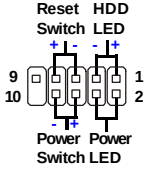
JTV1

**Pin Definition**

| Pin | Description | Pin | Description |
|---|---|---|---|
| 1 | GND | 2 | COMP |
| 3 | Yout | 4 | GND |
| 5 | Cout | | |

## Front Panel Connectors: JFP1 & JFP2

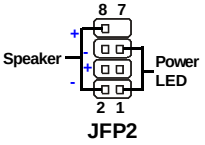
The mainboard provides two front panel connectors for electrical connection to the front panel switches and LEDs. The JFP1 is compliant with Intel® Front Panel I/O Connectivity Design Guide.




JFP1

**Pin Definition**

| PIN | SIGNAL | DESCRIPTION |
|---|---|---|
| 1 | HD_LED + | Hard disk LED pull-up |
| 2 | FPPWR/SLP | MSG LED pull-up |
| 3 | HD_LED - | Hard disk active LED |
| 4 | FPPWR/SLP | MSG LED pull-up |
| 5 | RST_SW - | Reset Switch low reference pull-down to GND |
| 6 | PWR_SW + | Power Switch high reference pull-up |
| 7 | RST_SW + | Reset Switch high reference pull-up |
| 8 | PWR_SW - | Power Switch low reference pull-down to GND |
| 9 | RSVD_DNU | Reserved. Do not use. |



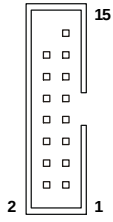

JFP2

**Pin Definition**

| PIN | SIGNAL | DESCRIPTION |
|---|---|---|
| 1 | GND | Ground |
| 2 | SPK- | Speaker- |
| 3 | SLED | Suspend LED |
| 4 | BUZ+ | Buzzer+ |
| 5 | PLED | Power LED |
| 6 | BUZ- | Buzzer- |
| 7 | NC | No connection |
| 8 | SPK+ | Speaker+ |

## VGA Connector: JVGA2

The connector is provided for VGA monitors.




JVGA2

**Pin Definition**

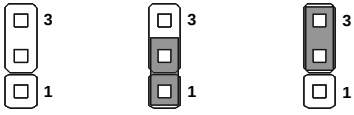
| PIN | SIGNAL | PIN | SIGNAL |
|---|---|---|---|
| 1 | VGA_R | 2 | GND |
| 3 | GND | 4 | NC |
| 5 | DDC_DATA | 6 | VGA_G |
| 7 | VGA_B | 8 | GND |
| 9 | VCC | 10 | HSYNC |
| 11 | VSYNC | 12 | NC |
| 13 | DDC_CLK | 14 | GND |
| 15 | GND | 16 | NC |

# Jumpers

The motherboard provides the following jumpers for you to set the computer's function. This section will explain how to change your motherboard's function through the use of jumpers.

## Clear CMOS Jumper: JBAT1

There is a CMOS RAM onboard that has a power supply from external battery to keep the data of system configuration. With the CMOS RAM, the system can automatically boot OS every time it is turned on. If you want to clear the system configuration, set the JBAT1 (Clear CMOS Jumper ) to clear data.




**JBAT1** Keep Data Clear Data

**Important**

*You can clear CMOS by shorting 2-3 pin while the system is off. Then return to 1-2 pin position. Avoid clearing the CMOS while the system is on; it will damage the mainboard.*

## SCART Out Jumper: CN1 & CN2 (for SCART Out board)

The CN1 Jumper determines the aspect ratio of TV display. You can display external source with 4:3 aspect ratio by shorting 1-2 pin and display external source with 16:9 aspect ratio by shorting 2-3 pin. The CN2 jumper determines the external video source display. You can display external composite video source by shorting 1-2 pin and display external RGB video source by shorting 2-3 pin.

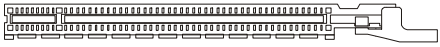
**CN1**

**CN2**

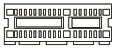
# Slots

## PCI (Peripheral Component Interconnect) Express Slot

PCI Express architecture provides a high performance I/O infrastructure for Desktop Platforms with transfer rates starting at 2.5 Giga transfers per second over a PCI Express x1 lane for Gigabit Ethernet, TV Tuners, 1394 controllers, and general purpose I/O. Also, desktop platforms with PCI Express Architecture will be designed to deliver highest performance in video, graphics, multimedia and other sophisticated applications. Moreover, PCI Express architecture provides a high performance graphics infrastructure for Desktop Platforms doubling the capability of existing AGP 8x designs with transfer rates of 4.0 GB/s over a PCI Express x16 lane for graphics controllers, while PCI Express x1 supports transfer rate of 250 MB/s.



**PCI Express x16 Slot**



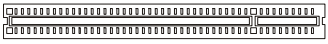
**PCI Express x1 Slot**

**Important**

*When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to configure any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.*

## PCI (Peripheral Component Interconnect) Slot

The PCI slot supports LAN cards, SCSI cards, USB cards, and other add-on cards that comply with PCI specifications. At 32 bits and 33 MHz, it yields a throughput rate of 133 MBps.



**32-bit PCI Slot**

## PCI Interrupt Request Routing

The IRQ, acronym of interrupt request line and pronounced I-R-Q, are hardware lines over which devices can send interrupt signals to the microprocessor. The PCI IRQ pins are typically connected to the PCI bus pins as follows:

| | Order 1 | Order 2 | Order 3 | Order 4 |
|---|---|---|---|---|
| **PCI Slot 1** | INT E# | INT F# | INT G# | INT H# |

# Chapter 3
# System Assembly

This chapter provides you with the information about system assembly procedures. While doing the installation, be careful in holding the components and follow the installation procedures.

Use a grounded wrist strap before handling computer components. Static electricity may damage the components.

**ONLY FOR SERVICE PERSONEL**

**Always unplug the power cord before inserting any add-on card or module.**

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# Overview

The built-in mainboard is designed for Media Live only. Except the mainboard, the built-in components of the barebone include Power Supply and 8 other cards. In this chapter we'll show you how to install Optical Disk Drive(ODD), Hard Disk Drive(HDD), PCI Card, CPU, CPU Cooler and Memory Modules.

## Installation Tools

*Cross type screwdriver*, can be used to do most of the installation. Choose one with a magnetic head would be better.

*Pliers*, can be used as an auxiliary tool to connect some connectors or cables.

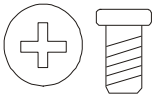
*Forceps*, can be used to pick up tiny screws or set up the jumpers.

*Rubber gloves*, can prevent yourself from being incised and suffering the static charge.

## Installation Screws

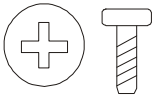
Two types of screws are used in assembling the MediaLive:

*Both screw type 1 and screw type 2 are silver colours.*



*Screw type 1*

This screw is used to lock the ODD, HDD and Chassis. (x9)



*Screw type 2*

This screw is used to lock the ODD interface board. (x2)

## Packing Checklist

Before assembling your system, please check the items listed below for basic system operation.

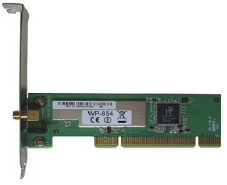
**CPU (Optional)**

**CPU Cooler**

**Optical Disk Drive (Optional)**

**Hard Disk Drive (Optional)**

**Memory Module (Optional)**



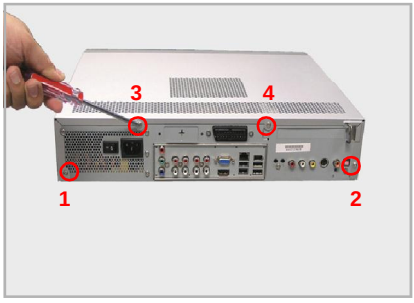
**PCI Card (Optional)**

∗These pictures are for your reference only. Your packing contents may vary depending on the model you purchased.

# Installation Procedures

## 1. Removing Top Cover

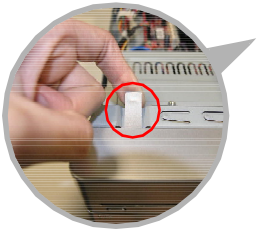
Unlock the four screws (*screw type 1*) on the back panel with a screwdriver.

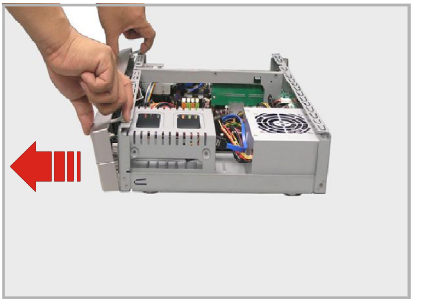



Follow the direction arrows to slide the top cover off and then remove it by lift it up carefully with hands.

After disassembly.

Follow the direction arrow to pull the three hooks open to remove the front panel and to release all the cages.





**Important**

*1. Always be careful when you handle with the three hooks on the front panel. Remember to pull them open gently with fingers or the damages can be made easily.*

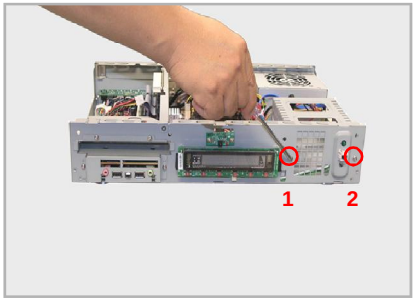
*2. Always avoid touching the Integrated VFD Module when you remove the front panel because it can be broken easily.*

After disassembly.

Front Panel

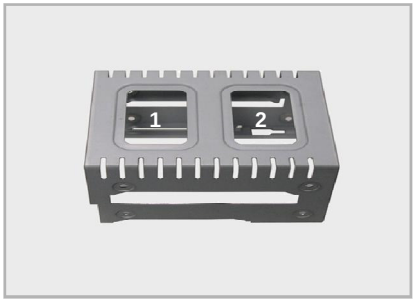
## 2. Installing Hard Disk Driver (HDD)

Unlock the two screws (*screw type 1*) on the front panel with a screwdriver.

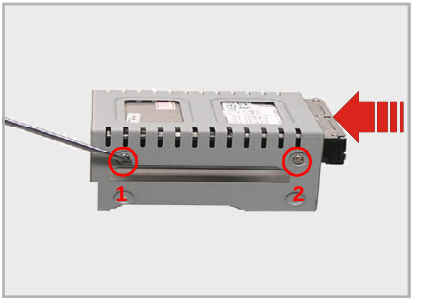



Follow the direction arrow to take out the HDD holder carefully with hands.

Always keep your fingers away from these two sharp edges of the HDD holder or you may get hurt easily.

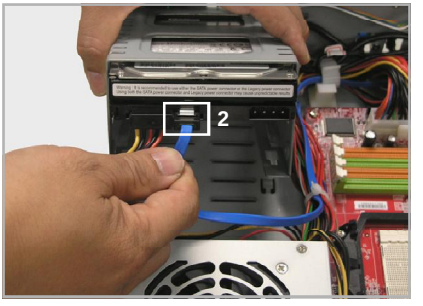


Follow the direction arrow to insert the HDD into the HDD holder carefully and then lock up the two screws (*screw type 1*) with a screwdriver.



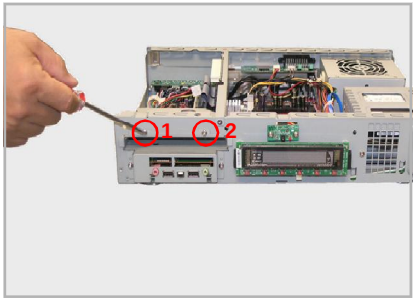

Install the HDD holder (with HDD) onto the chassis carefully and connect the power cable.

Connect the SATA cable and lock back the two screws (*screw type 1*) on the front panel with a screwdriver.

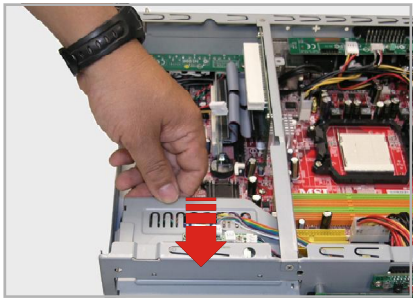


## 3. Installing Optical Disk Driver (ODD)

Unlock the two screws (*screw type 1*) on the front panel with a screwdriver.

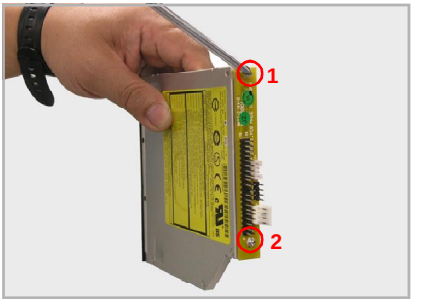



Follow the direction arrow to push the ODD tray forward carefully with hands.

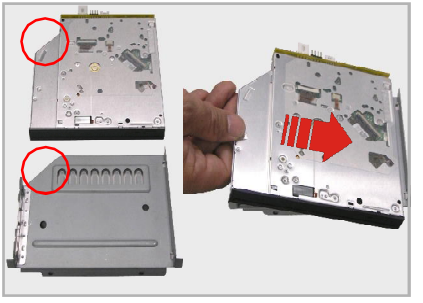


Insert the ODD interface board into the slim slot-in ODD and please avoid touching the pinheader on the board because the damages can be made easily.

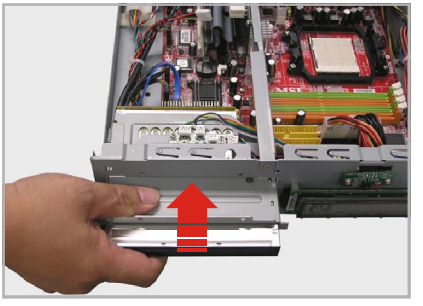
Lock up the two screws (*screw type 2*) on the ODD interface board with a screwdriver.



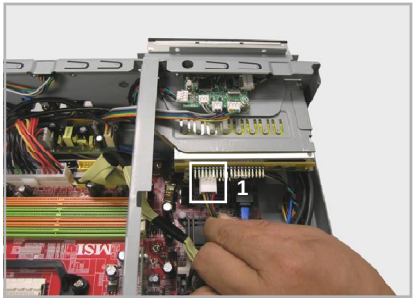

Match the orientation of ODD and ODD tray and then follow the direction arrow to install the ODD onto the ODD tray carefully. Please make sure the ODD is properly and completely fixed to the ODD tray.



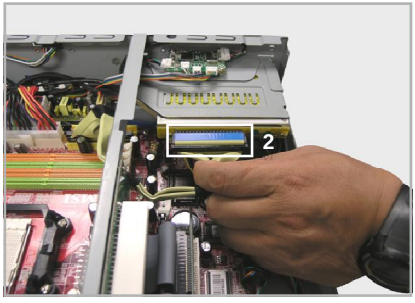
Follow the direction arrow to install the ODD tray (with ODD) onto the chassis carefully.



Connect the power cable.



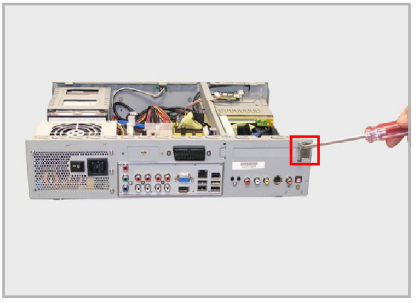

Connect the IDE cable.




Lock back the two screws (*screw type 1*) on the front panel with a screwdriver.

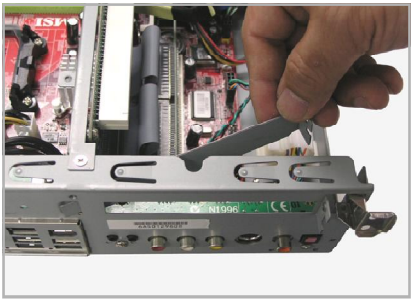
## 4. Installing PCI Card

Unlock the screw (*screw type 1*) on the lock bracket with a screwdriver.



Follow the direction arrow to open the lock bracket with fingers carefully.

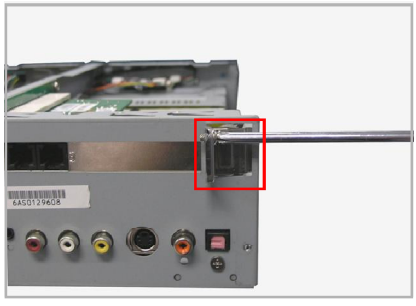
Remove the iron shield to release the PCI expansion slot.



Insert the PCI card vertically into the PCI slot.

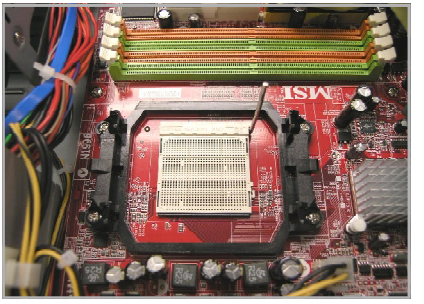
Follow the direction arrow to close the lock bracket with fingers carefully.

Lock back the screw (*screw type 1*) on the back panel with a screwdriver.

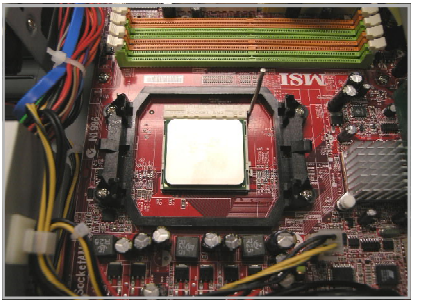


## 5. Installing CPU

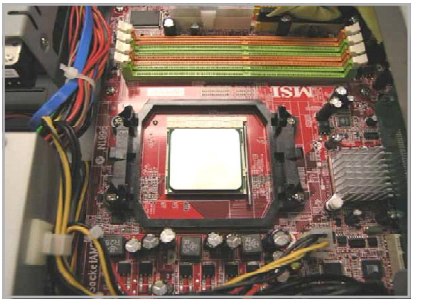
Pull the lever sideways away from the CPU socket, make sure you lift it up to a 90 degree angle.



Find the gold arrow on the AMD® AM2 CPU before installation, remember the CPU can only fit in the correct orientation.



Press the CPU down firmly into the CPU socket and close the lever with your fingers pressing tightly, make sure the CPU is properly and completely embedded into the socket.

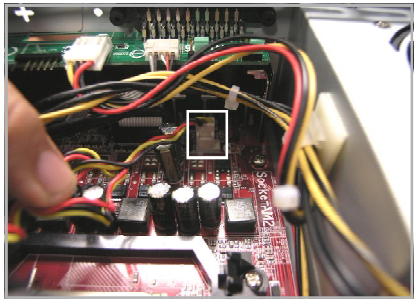


**Important**

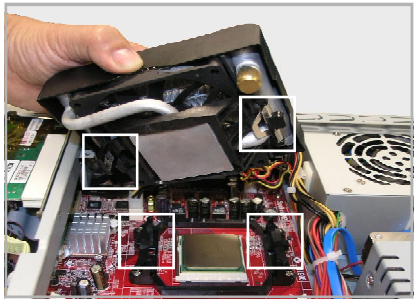
*Please note that any violation of the correct installation procedures may cause permanent damages to your mainboard.*

## 5. Installing CPU Cooler

Connect the power cable of CPU cooler first.

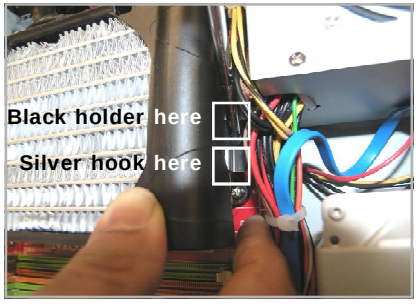


Match the direction of CPU cooler and mainboard retention module.



Install the CPU cooler onto the mainboard retention frame by pressing the black holder down firmly with a screwdriver and then close the silver hook with your fingers pressing tightly.

*∗In order to protect your fingers from hurting by the silver hook, putting on the rubber gloves is necessary and recommended.*

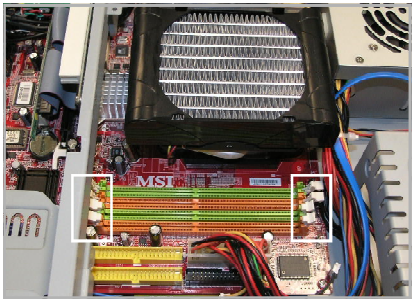



**Important**

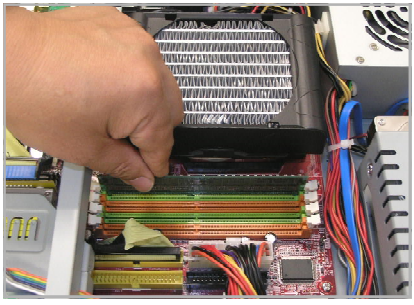
*Please make sure the CPU Cooler is properly and completely fixed to the mainboard retention module.*

## 6. Installing Memory Modules

Open the plastic clips at each side. The DDR II memory module has only one notch on the center of module and it will only fit in the correct orientation.



Insert the memory module vertically into the slot by pushing it in until the golden finger is deeply inserted in the slot. The plastic clip at each side of the slot will automatically close.

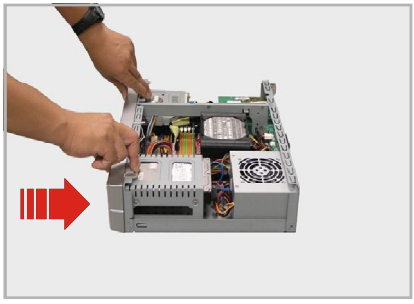


**Important**

1. *DDR II modules are not interchangeable with DDR and the DDR II standard is not backwards compatible. You should always install DDR II memory modules in the DDR II DIMMs and DDR memory modules in the DDR DIMMs.*
2. *In dual-channel mode, make sure that you install memory modules of the same type and density in differentchannel DDR DIMMs.*
3. *To enable successful system boot-up, always insert the memory modules into the DIMM1 first.*

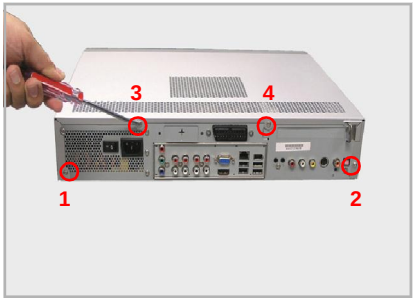
## 10. Restoring Top Cover

Follow the direction arrow to restore the front panel to the chassis to fix all the cages.



Follow the direction arrows to restore the top cover.

Lock back the four screws (*screw type 1*) on the back panel with a screwdriver.




**Important**

*The ventilation holes on the chassis are for air convection to protect the machine from overheating. Do not cover the ventilation holes with equipments such as LCD monitor , LCD TV, CRT monitor and so on.*

# Chapter 4
# BIOS Setup

This chapter provides the information on the BIOS Setup program and allows you to configure the system for optimum use.

You may need to run the Setup program when:
▶ An error message appears on the screen during the system booting up, and requests you to run SETUP.
▶ You want to change the default settings for customized features.

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## Entering Setup

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press <DEL> key to enter Setup.

**Press DEL to enter SETUP**

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

**Important**

1. *The items under each BIOS category described in this chapter are under continuous update for better system performance. Therefore, the description may be slightly different from the latest BIOS and should be held for reference only.*
2. *Upon boot-up, the 1st line appearing after the memory count is the BIOS version. It is usually in the format:*

***A7329IMS V1.0 09/28/06 where:***

▶ *1st digit refers to BIOS maker as A= AMI, W= AWARD, and P= PHOENIX.*
▶ *2nd - 5th digit refers to the model number.*
▶ *6th digit refers to the chipset as I= Intel, N= nVidia, and V= VIA.*
▶ *7th - 8th digit refers to the customer as MS= all standard customers.*
▶ *V1.0 refers to the BIOS version.*
▶ *09/28/06 refers to the date this BIOS was released.*

## Control Keys

| | |
|---|---|
| <↑> | Move to the previous item |
| <↓> | Move to the next item |
| <←> | Move to the item in the left hand |
| <→> | Move to the item in the right hand |
| <Enter> | Select the item |
| <Esc> | Jumps to the Exit menu or returns to the main menu from a submenu |
| <+> | Increase the numeric value or make changes |
| <-> | Decrease the numeric value or make changes |
| <F1> | General Help |
| <F6> | Load Optimized Defaults |
| <F10> | Save & Exit Setup |

## Getting Help

After entering the Setup menu, the first menu you will see is the Main Menu.

### ▶ Main Menu

The main menu lists the setup functions you can make changes to. You can use the arrow keys (↑↓) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

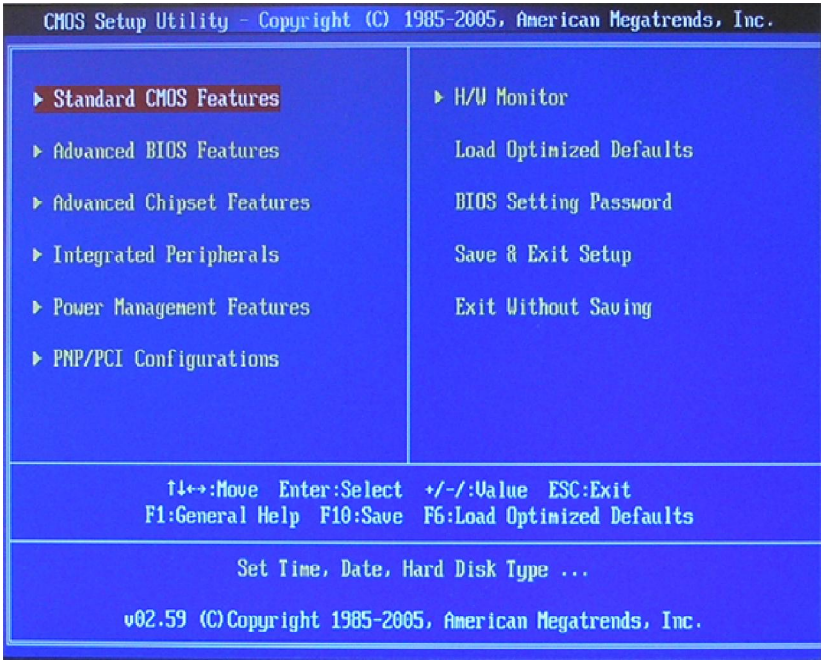
### ▶ Sub-Menu

If you find a right pointer symbol (as shown in the right view) appears to the left of certain fields that means a sub-menu can be launched from this field. A sub-menu contains additional options for a field parameter. You can use arrow keys ( ↑↓ ) to highlight the field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press the <Esc >.

## General Help <F1>

The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

## The Main Menu


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Standard CMOS Features
Advanced BIOS Features
Advanced Chipset Features
Integrated Peripherals
Power Management Features
PNP/PCI Configurations
H/W Monitor
Load Optimized Defaults
BIOS Setting Password
Save & Exit Setup
Exit Without Saving
↑↓↔:Move Enter:Select +/-/:Value ESC:Exit
F1:General Help F10:Save F6:Load Optimized Defaults
Set Time, Date, Hard Disk Type ...
v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

**▶ Standard CMOS Features**
Use this menu for basic system configurations, such as time, date etc.

**▶ Advanced BIOS Features**
Use this menu to setup the items of AMI® special enhanced features.

**▶ Advanced Chipset Features**
Use this menu to change the values in the chipset registers and optimize your system's performance.

**▶ Integrated Peripherals**
Use this menu to specify your settings for integrated peripherals.

**▶ Power Management Features**
Use this menu to specify your settings for power management.

**▶ PNP/PCI Configurations**
This entry appears if your system supports PnP/PCI.

**▶ H/W Monitor**
This entry shows your PC health status.

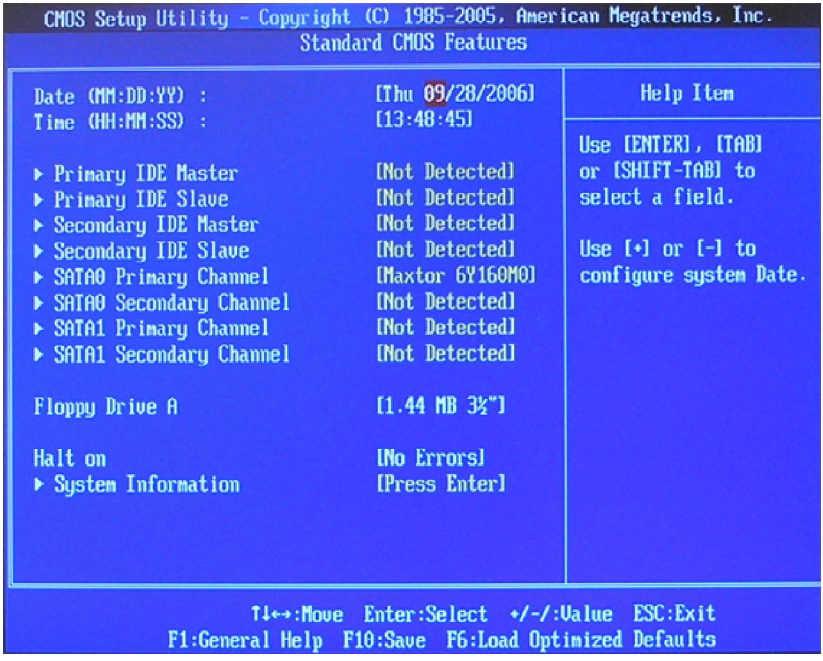
**▶ Load Optimized Defaults**
Use this menu to load the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard.

**▶ BIOS Setting Password**
Use this menu to set the password for BIOS.

**▶ Save & Exit Setup**
Save changes to CMOS and exit setup.

**▶ Exit Without Saving**
Abandon all changes and exit setup.

## Standard CMOS Features


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Standard CMOS Features
Date (MM:DD:YY) : [Thu 09/28/2006]
Time (HH:MM:SS) : [13:48:45]
Primary IDE Master [Not Detected]
Primary IDE Slave [Not Detected]
Secondary IDE Master [Not Detected]
Secondary IDE Slave [Not Detected]
SATA0 Primary Channel [Maxtor 6Y160M0]
SATA0 Secondary Channel [Not Detected]
SATA1 Primary Channel [Not Detected]
SATA1 Secondary Channel [Not Detected]
Floppy Drive A [1.44 MB 3½"]
Halt on [No Errors]
System Information [Press Enter]
Help Item
Use [ENTER], [TAB] or [SHIFT-TAB] to select a field.
Use [+] or [-] to configure system Date.
↑↓↔:Move Enter:Select +/-/:Value ESC:Exit
F1:General Help F10:Save F6:Load Optimized Defaults

**► Date (MM:DD:YY)**
This allows you to set the system to the date that you want (usually the current date). The format is <day> <month> <date> <year>.

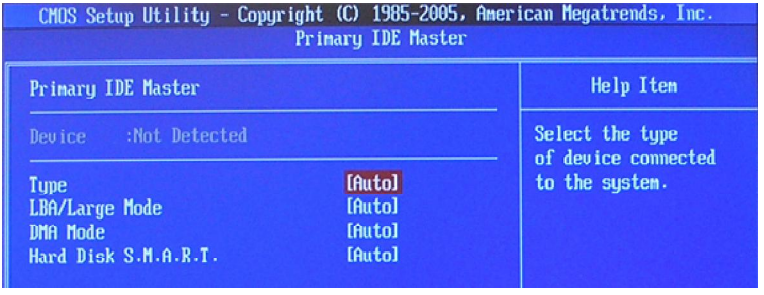
[Day] Day of the week, from Sun to Sat, determined by BIOS. Read only.
[Month] The month from Jan. through Dec.
[Date] The date from 1 to 31 can be keyed by numeric function keys.
[Year] The year can be adjusted by users.

**► Time (HH:MM:SS)**
This allows you to set the system time that you want (usually the current time). The time format is <hour> <minute> <second>.

▶ **Primary/Secondary IDE Master/Slave, SATA0/1 Primary/Secondary Channel.**
Press <+> or <-> to select [Manual], [None] or [Auto] type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use [Manual] to define your own drive type manually.If you select [Manual], related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

| | |
|---|---|
| [Access Mode] | The settings are CHS, LBA, Large, Auto. |
| [Capacity] | The formatted size of the storage device. |
| [Cylinder] | Number of cylinders. |
| [Head] | Number of heads. |
| [Precomp] | Write precompensation. |
| [Landing Zone] | Cylinder location of the landing zone. |
| [Sector] | Number of sectors. |

Press <Enter> to enter the sub-menu:


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Primary IDE Master
Primary IDE Master
Device :Not Detected
Type [Auto]
LBA/Large Mode [Auto]
DMA Mode [Auto]
Hard Disk S.M.A.R.T. [Auto]
Help Item
Select the type of device connected to the system.

**Type**
This item allows you to select the hard disk type. Available setting options are: [Not Installed], [Auto], [CD/DVD] or [ARMD].

**LBA/Large Mode**
This item allows you to enable or disable the LBA (Logical Block Address, the logical block size in hard disk) mode.

**DMA Mode**
This item allows you to enable or disable the DMA (Direct Memory Access) mode.

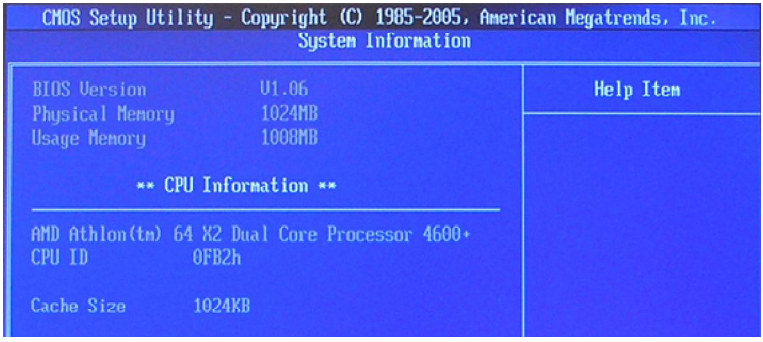
**Hard Disk S.M.A.R.T.**
This allows you to activate the S.M.A.R.T. (Self-Monitoring Analysis & Reporting Technology) capability for the hard disks. S.M.A.R.T is a utility that monitors your disk status to predict hard disk failure. This gives you an opportunity to move data from a hard disk that is going to fail to a safe place before the hard disk becomes offline.

**▶ Floppy Drive A**
This item allows you to set the type of floppy drives installed.

**▶ Halt On**
The setting determines whether the system will stop if an error is detected at boot. When the system stops for the errors preset, it will halt on for 15 seconds and then automatically resume its operation. Available options are:

| | |
|---|---|
| [No Errors] | The system doesn't stop for any detected error. |
| [All, But Keyboard] | The system doesn't stop for a keyboard error. |

**▶ System Information**
Press <Enter> to enter the sub-menu:

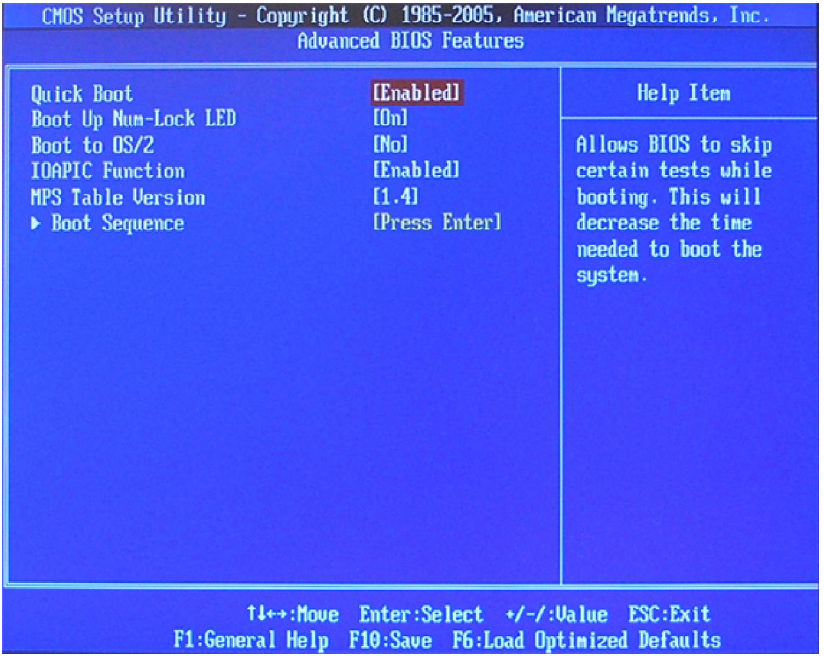

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
System Information
BIOS Version V1.06
Physical Memory 1024MB
Usage Memory 1008MB
** CPU Information **
AMD Athlon(tm) 64 X2 Dual Core Processor 4600+
CPU ID 0FB2h
Cache Size 1024KB
Help Item

**BIOS Version**
This item shows the BIOS version of your system (read only).

**Physical / Usage Memory**
These items show the memory size of your system. You cannot change any values in the these fields (read only).

**CPU ID / Cache Size**
These items show the CPU related information of your system (read only).

# Advanced BIOS Features


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Advanced BIOS Features
Quick Boot [Enabled]
Boot Up Num-Lock LED [On]
Boot to OS/2 [No]
IOAPIC Function [Enabled]
MPS Table Version [1.4]
▸ Boot Sequence [Press Enter]
Help Item
Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.
↑↓←→:Move Enter:Select +/-/:Value ESC:Exit
F1:General Help F10:Save F6:Load Optimized Defaults

**▶ Quick Boot**
Setting the item to [Enabled] allows the system to boot within 5 seconds since it will skip some check items.

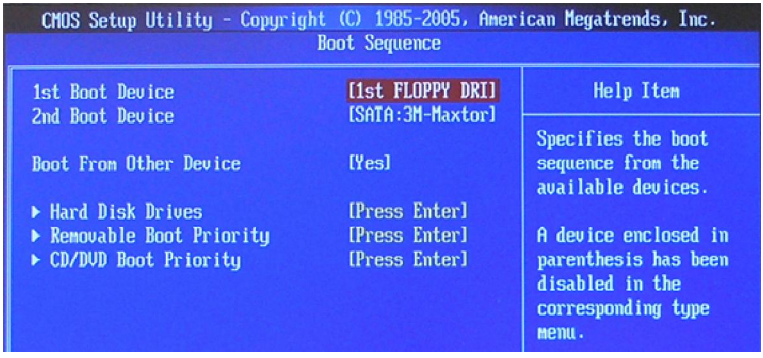
**▶ Boot Up Num-Lock LED**
This setting is to set the Num Lock status when the system is powered on. Setting to [On] will turn on the Num Lock key when the system is powered on. Setting to [Off] will allow users to use the arrow keys on the numeric keypad.

**▶ Boot to OS/2**
This allows you to run the OS/2 operating system with DRAM larger than 64MB. When you choose [No], you cannot run the OS/2® operating system with DRAM larger than 64MB. But it is possible if you choose [OS2].

**▶ IOAPIC Function**
This field is used to enable or disable the APIC (Advanced Programmable Interrupt Controller). Due to compliance with PC2001 design guide, the system is able to run in APIC mode. Enabling APIC mode will expand available IRQ resources for the system.

**► MPS Table Version**
This field allows you to select which MPS (Multi-Processor Specification) version to be used for the operating system. You need to select the MPS version supported by your operating system. To find out which version to use, consult the vendor of your operating system.

**► Boot Sequence**
The original IBM PCs loaded the DOS operating system from drive A (floppy disk), so IBM PC-compatible systems are designed to search for an operating system first on drive A, and then on drive C (hard disk). However, modern computers usually load the operating system from the hard drive, and may even load it from a CD-ROM drive. Press <Enter> to enter the sub-menu:

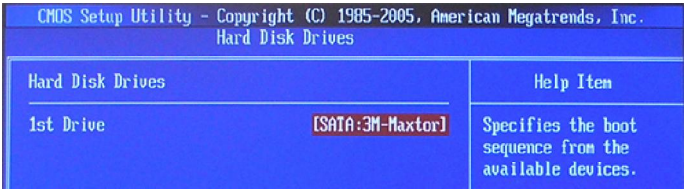

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Boot Sequence
1st Boot Device
[1st FLOPPY DRI]
2nd Boot Device
[SATA:3M-Maxtor]
Boot From Other Device
[Yes]
▸ Hard Disk Drives
[Press Enter]
▸ Removable Boot Priority
[Press Enter]
▸ CD/DVD Boot Priority
[Press Enter]
Help Item
Specifies the boot sequence from the available devices.
A device enclosed in parenthesis has been disabled in the corresponding type menu.

**1st / 2nd Boot Device**
These items allow you to set the sequence of boot devices where BIOS attempts to load the disk operating system.

**Boot From Other Device**
Setting the option to [Yes] allows the system to try to boot from other device if the system fails to boot from the 1st/2nd boot device.

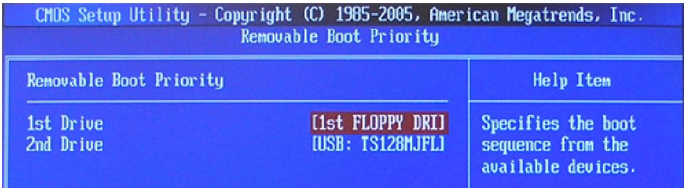
**Hard Disk Drives**

Press <Enter> to enter the sub-menu. Then you may use the arrow keys ( ↑↓ ) to select the desired device, then press <+>, <-> key to move it up/down in this hard disk drives list.


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Hard Disk Drives
Hard Disk Drives
Help Item
1st Drive
[SATA:3M-Maxtor]
Specifies the boot sequence from the available devices.

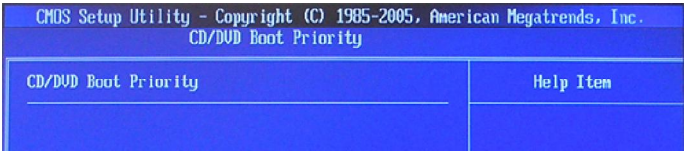
**Removable Boot Priority**

Press <Enter> to enter the sub-menu. Then you may use the arrow keys ( ↑↓ ) to select the desired device, then press <+>, <-> key to move it up/down in this removable boot priority list.

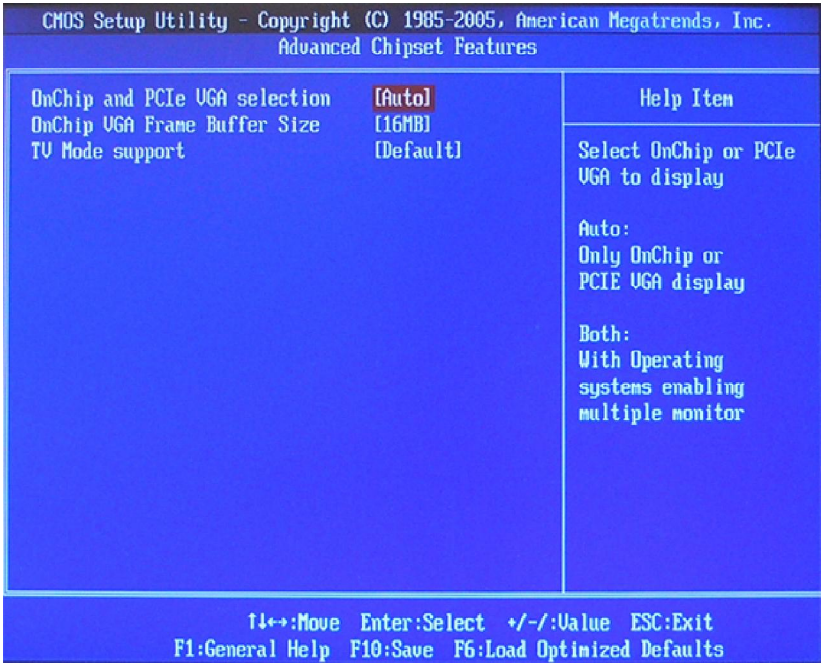



**CD/DVD Boot Priority**

Press <Enter> to enter the sub-menu. Then you may use the arrow keys ( ↑↓ ) to select the desired device, then press <+>, <-> key to move it up/down in this CD/DVD boot priority list.



# Advanced Chipset Features


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Advanced Chipset Features
OnChip and PCIe VGA selection [Auto]
OnChip VGA Frame Buffer Size [16MB]
TV Mode support [Default]
Help Item
Select OnChip or PCIe VGA to display
Auto:
Only OnChip or PCIE VGA display
Both:
With Operating systems enabling multiple monitor
↑↓↔:Move Enter:Select +/-/:Value ESC:Exit
F1:General Help F10:Save F6:Load Optimized Defaults

**▶ OnChip and PCIe VGA selection**

This item allows you to select OnChip or PCI Express VGA display. Available setting options are:

| | |
|---|---|
| [Auto] | Display only OnChip or PCI Express VGA. |
| [Both] | Display both OnChip and PCI Express VGA. |

**▶ OnChip VGA Frame Buffer Size**

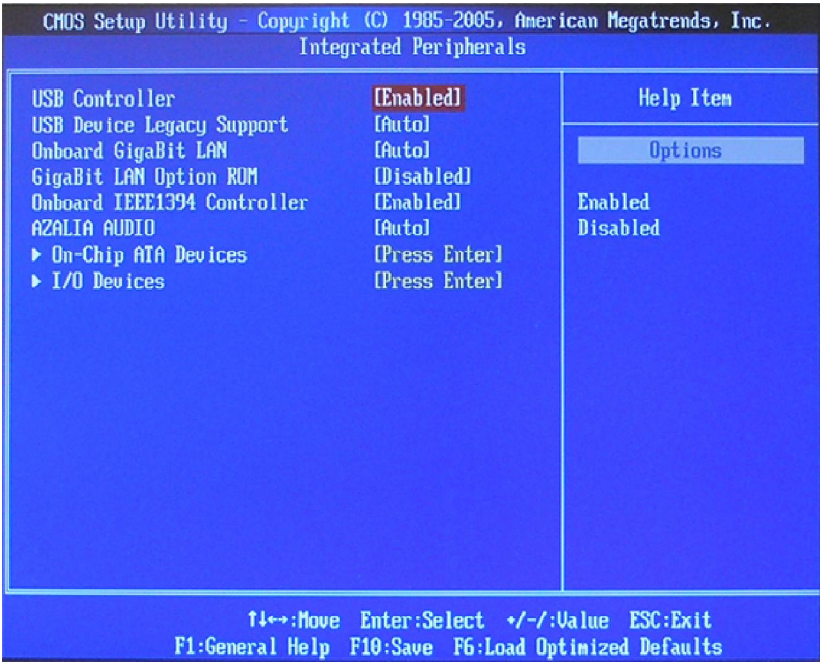
The field specifies the size of system memory allocated for video memory.

**▶ TV Mode support**

Select the TV standard which is used as the video signal format of your TV if you have connected a TV to the system. Available setting options are:

| | |
|---|---|
| [NTSC_M] | This format is used in United States, Canada and Taiwan. |
| [NTSC_J] | This format is used in Japan. |
| [PAL_M] | This format is used in Brazil. |
| [PAL_BDGHI] | This format is used in Singapore and Asia. |
| [PAL_N] | This format is used in Argentina and Bolivia. |
| [PAL_NC] | This format is used in Argentina. |
| [Default] | The value that the operating system assumes. |

# Integrated Peripherals




**▶ USB Controller**
Select [Enabled] if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals.

**▶ USB Device Legacy Support**
Set to [Auto] if you need to use any USB 1.1/2.0 device in the operating system that does not support or have any USB 1.1/2.0 driver installed, such as DOS and SCO Unix. Set to [Disabled] only if you want to use any USB device other than the USB mouse.

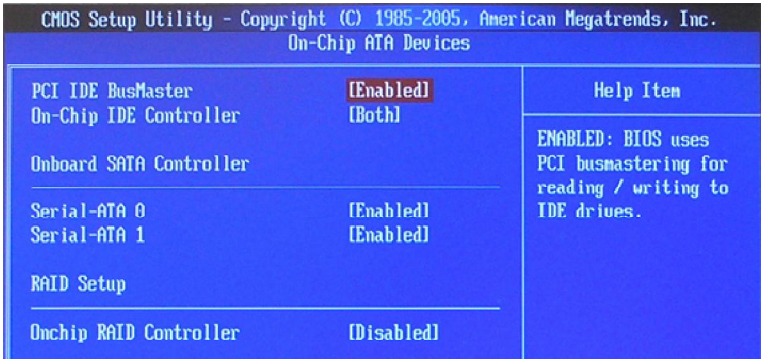
**▶ Onboard GigaBit LAN**
This setting controls the onboard GigaBit LAN controller.

**▶ GigaBit LAN Option ROM**
The item enables or disables the GigaBit LAN Option ROM during bootup. Selecting [Disabled] will speed up the boot process. Setting options: [Enabled], [Disabled].

**▶ Onboard IEEE1394 Controller**
This setting is used to enable/disable the onboard IEEE 1394 controller.

**► Azalia Audio**
Azalia is the codename of "High Definition Audio." This setting allows users to disable/enable the High Definition Audio interface integrated in southbridge.

**► On-Chip ATA Devices**
Press <Enter> to enter the sub-menu:


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
On-Chip ATA Devices
PCI IDE BusMaster [Enabled]
On-Chip IDE Controller [Both]
Onboard SATA Controller
Serial-ATA 0 [Enabled]
Serial-ATA 1 [Enabled]
RAID Setup
Onchip RAID Controller [Disabled]
Help Item
ENABLED: BIOS uses PCI busmastering for reading / writing to IDE drives.

**PCI IDE BusMaster**
Set this option to [Enabled] to specify that the IDE controller on the PCI local bus has bus mastering capability.

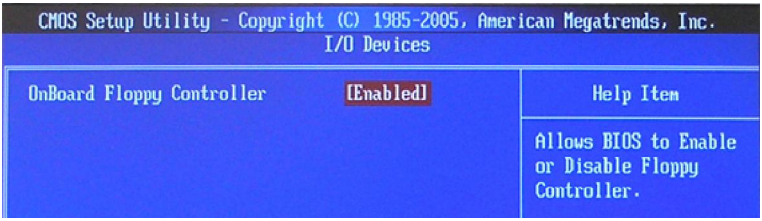
**On-Chip IDE Controller**
The integrated peripheral controller contains a IDE interface with support for two IDE channels. Available setting options are:

| | |
|---|---|
| [Disabled] | Disables the integrated IDE Controller. |
| [Primary] | Enables only the Primary IDE Controller. |
| [Secondary] | Enables only the Secondary IDE Controller. |
| [Both] | Enables both IDE Controllers. |

**Serial-ATA 0/1**
This allows you to enable or disable onchip Serial-ATA controller.

**Onchip RAID Controller**
This allows you to enable or disable onchip IDE RAID controller. The field is optional. It appears only when your mainboard supports IDE RAID function.

**► I/O Devices**
Press <Enter> to enter the sub-menu:


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
I/O Devices
OnBoard Floppy Controller
[Enabled]
Help Item
Allows BIOS to Enable or Disable Floppy Controller.

**OnBoard Floppy Controller**
Select [Enabled] if your system has a floppy disk controller (FDD) installed on the system board and you wish to use it. If you install add-on FDC or the system has no floppy drive, select [Disabled] in this field.

# Power Management Setup

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Power Management Features
ACPI Function [Enabled]
ACPI Standby State [S1/POS]
Power Button Function [On/Off]
Restore on AC Power Loss [Power Off]
▶ Wakeup Event Setup [Press Enter]
Help Item
Options
Disabled
Enabled
↑↓↔:Move Enter:Select +/-/:Value ESC:Exit
F1:General Help F10:Save F6:Load Optimized Defaults

**▶ ACPI Function**

This item is to activate the ACPI (Advanced Configuration and Power Management Interface) Function. If your operating system is ACPI-aware, such as Windows 98SE/ 2000/ME, select [Enabled].

**▶ ACPI Standby State**

This item specifies the power saving modes for ACPI function. If your operating system supports ACPI, such as Windows 98SE, Windows ME and Windows 2000, you can choose to enter the Standby mode in S1 (POS) or S3 (STR) fashion through the setting of this field. Setting options:

[S1(POS)] The S1 sleep mode is a low power state. In this state, no system context is lost (CPU or chipset) and hardware maintains all system context.

[S3(STR)] The S3 sleep mode is a lower power state where the information of system configuration and open applications/files is saved to main memory that remains powered while most other hardware components turn off to save energy. The information stored in memory will be used to restore the system when a “wake up” event occurs.

**▶ Power Button Function**

This feature allows users to configure the Power Button function. Settings are:

| | |
|---|---|
| [On/Off] | The power button functions as a normal power-on/-off button. |
| [Suspend] | When you press the power button, the computer enters the suspend/sleep mode, but if the button is pressed for more than four seconds, the computer is turned off. |

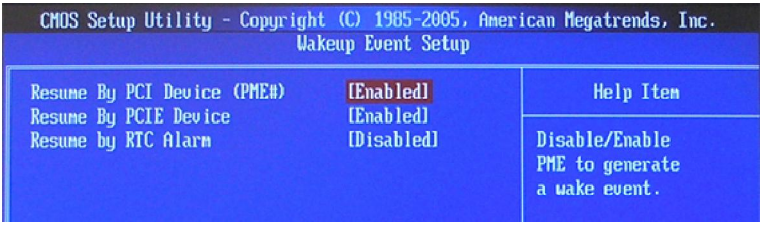
**▶ Restore on AC Power Loss**

This setting specifies whether your system will reboot after a power failure or interrupt occurs. Available settings are:

| | |
|---|---|
| [Power Off] | Leaves the computer in the power off state. |
| [Power On] | Leaves the computer in the power on state. |
| [Last State] | Restores the system to the previous status before power failure or interrupt occurred. |

**▶ Wakeup Event Setup**

Press <Enter> to enter the sub-menu:


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Wakeup Event Setup
Resume By PCI Device (PME#) [Enabled]
Resume By PCIE Device [Enabled]
Resume by RTC Alarm [Disabled]
Help Item
Disable/Enable PME to generate a wake event.

**Resume By PCI Device (PME#)**

When setting to [Enabled], this setting allows your system to be awakened from the power saving modes through any event on PME (Power Management Event).

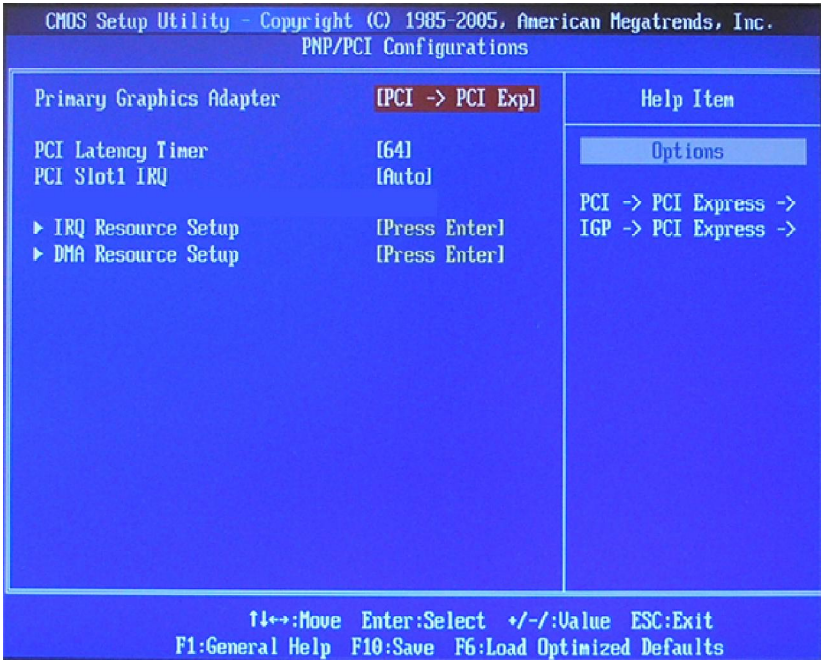
**Resume By PCIE Device**

When setting to [Enabled], this setting allows your system to be awakened from the power saving modes through any event on PME (Power Management Event). Setting options: [Disabled], [Enabled].

**Resume by RTC Alarm**

This is used to enable or disable the feature of booting up the system on a scheduled time/date from the S3, S4, and S5 state.

# PNP/PCI Configurations




**▶ Primary Graphics Adapter**
This setting specifies which graphic card is your primary graphics adapter. Select [PCI], the system initializes the installed PCI VGA card first. If a PCI VGA card is not available, it will initialize the PCI Express card.

**▶ PCI Latency Timer**
This item controls how long each PCI device can hold the bus before another takes over. When set to higher values, every PCI device can conduct transactions for a longer time and thus improve the effective PCI bandwidth. For better PCI performance, you should set the item to higher values.

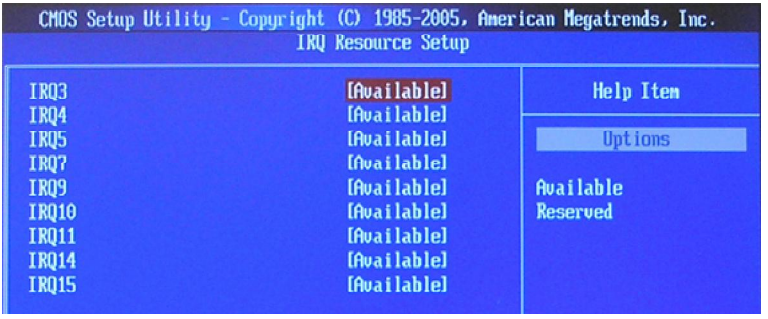
**▶ PCI Slot 1 IRQ**
This item specifies the IRQ line for each PCI slot.

### ▶ IRQ Resource Setup

The items are adjustable only when Resources Controlled By is set to Manual. Press <Enter> and you will enter the sub-menu of the items. IRQ Resources list IRQ 3/4/5/7/9/10/11/12/14/15 for users to set each IRQ a type depending on the type of device using the IRQ. Settings are:

[PCI Device] For Plug & Play compatible devices designed for PCI bus architecture.

[Reserved] The IRQ will be reserved for further request.




**IRQ [3-15]**

These fields specify whether the system will be awakened from power saving modes when activity or input signal of the specified hardware peripheral or component is detected.

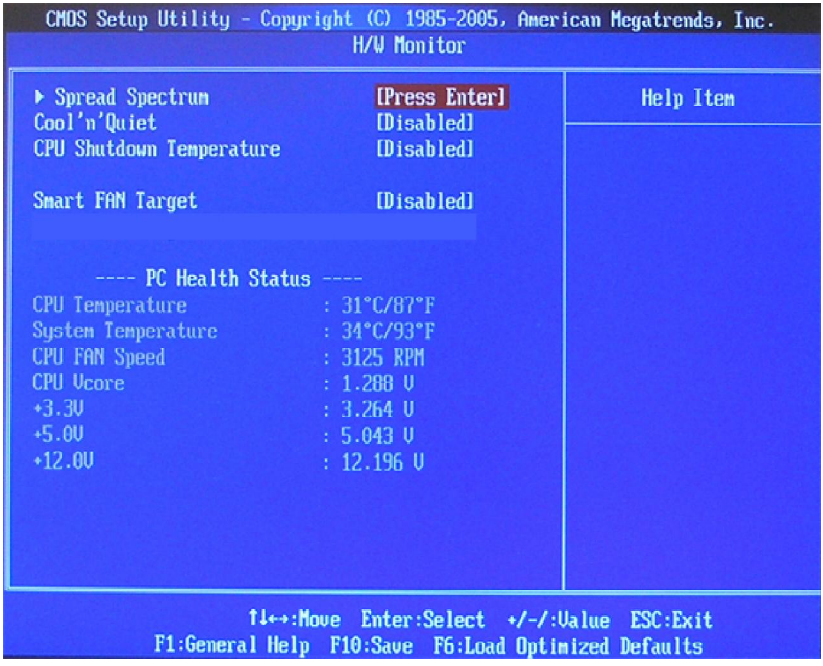
### ▶ DMA Resource Setup

Press <Enter> to enter the sub-menu:

**DMA Channel [0-7]**

These items specify the bus that the system DMA (Direct Memory Access) channel is using. The settings determine if AMIBIOS should remove a DMA from the available DMAs passed to devices that are configurable by the system BIOS. The available DMA pool is determined by reading the ESCD NVRAM. If more DMAs must be removed from the pool, the end user can reserve the DMA by assigning an [ISA/EISA] setting to it.

# H/W Monitor

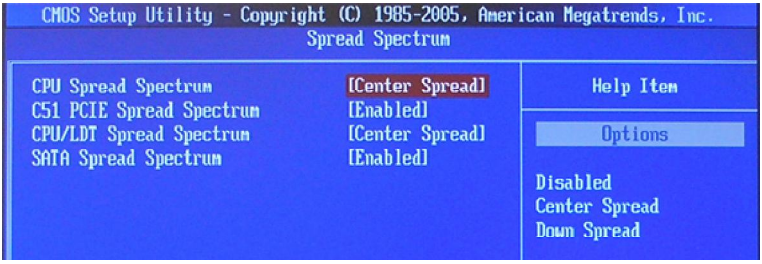

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
H/W Monitor
▶ Spread Spectrum [Press Enter]
Cool'n'Quiet [Disabled]
CPU Shutdown Temperature [Disabled]
Smart FAN Target [Disabled]
---- PC Health Status ----
CPU Temperature : 31°C/87°F
System Temperature : 34°C/93°F
CPU FAN Speed : 3125 RPM
CPU Vcore : 1.288 V
+3.3V : 3.264 V
+5.0V : 5.043 V
+12.0V : 12.196 V
Help Item
↑↓↔:Move Enter:Select +/-/:Value ESC:Exit
F1:General Help F10:Save F6:Load Optimized Defaults

**▶ Spread Spectrum**

When the motherboard's clock generator pulses, the extreme values (spikes) of the pulses creates EMI (Electromagnetic Interference). The Spread Spectrum function reduces the EMI generated by modulating the pulses so that the spikes of the pulses are reduced to flatter curves.

**Important**

1. *If you do not have any EMI problem, leave the setting at [Disabled] for optimal system stability and performance. But if you are plagued by EMI, select the value of Spread Spectrum for EMI reduction.*
2. *The greater the Spread Spectrum value is, the greater the EMI is reduced, and the system will become less stable. For the most suitable Spread Spectrum value, please consult your local EMI regulation.*
3. *Remember to disable Spread Spectrum if you are overclocking because even a slight jitter can introduce a temporary boost in clock speed which may just cause your overclocked processor to lock up.*




**CPU Spread Specturm**
This setting is used to enable or disable the CPU Spread Spectrum feature. When overclocking the CPU, always set it to [Disabled]. Setting options: [Disabled], [Center Spread] and [Down Spread].

**C51 PCIE Spread Specturm**
This setting is used to enable or disable the C51 PCI Express Spread Spectrum feature. When overclocking the CPU, always set it to [Disabled]. Setting options: [Disabled], [Down Spread].

**CPU/LDT Spread Specturm**
This setting is used to enable or disable the CPU/LDT Spread Spectrum feature. When overclocking the CPU, always set it to [Disabled]. Setting options: [Disabled], [Center Spread] and [Down Spread].

**SATA Spread Specturm**
This setting is used to enable or disable the SATA Spread Spectrum feature. When overclocking the CPU, always set it to [Disabled]. Setting options: [Disabled], [Down Spread].

► **Cool'n'Quiet**
This feature is especially designed for AMD Athlon processor, which provides a CPU temperature detecting function to prevent your CPU's from overheating due to the heavy working loading.

**Important**

*To ensure the stability of the Cool'n'Quiet function, it is always recommended to have the memories plugged in DIMM1.*

► **CPU Shutdown Temperature**
If the CPU temperature reaches the upper limit preset in this setting, the system will be shut down automatically. This helps you to prevent the CPU overheating problem. This item is available only when your OS supports this function, such as Windows ME/XP.

► **Smart FAN Target**
The mainboard provides the Smart Fan system which can control the fan speed automatically depending on the current temperature to keep it with in a specific range.

► **CPU/System Temperature, CPU FAN Speed/Vcore, +3.3V, +5.0V, +12.0V**
These items display the current status of all of the monitored hardware devices/ components such as CPU voltages, temperatures and all fans' speeds.

## Load Optimized Defaults

The Optimized Defaults are the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard.

When you select Load Optimized Defaults, a message as below appears:

Pressing *Y* loads the default factory settings for optimal system performance.

## BIOS Setting Password

When you select this function, a message as below will appear on the screen:

Type the password, up to 6 characters in length, and press <Enter>. The password typed now will replace any previously set password from CMOS memory. You will be prompted to confirm the password. Retype the password and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To clear a set password, just press <Enter> when you are prompted to enter the password. A message will show up confirming the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup without entering any password.

When a password has been set, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

# Chapter 5
# Software Setup

This chapter provides you with the software information about MSI® Media Live (MS-6421) Media Center. With a full range of easy-to-use digital entertainment features, experience TV, movies, music and photos with Media Live are like never before.

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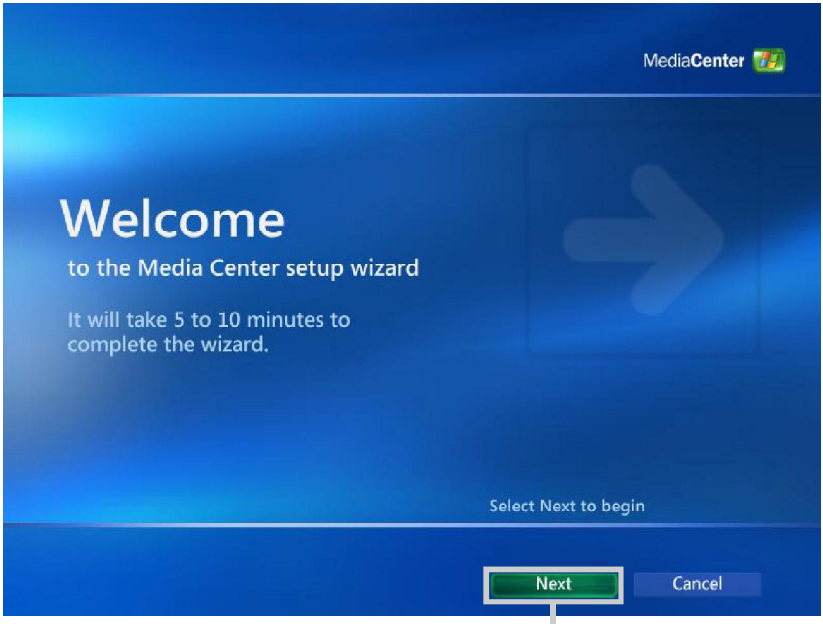
# Setting Up

The first time you start your Media Live, a *Media Center Setup Wizard* opens. It is best to complete each step in the setup wizard to be able to use all the features in Media Center. The Media Center Setup Wizard may take approximately 10-40 minutes to complete. If there are steps you still need to complete, you can go to the *Settings Menu* by following the procedure below:

## Completing the Setup Wizard Steps

1. Press the *Media Center Green Start Button* on the remote control.
2. Select *Settings*. You may need to use the arrow buttons on the remote control to scroll down to see all the menu items.
3. Select *General*, *Media Center Setup*, and then select *Run Media Center Setup Again*. Follow the instructions on the screen to complete the setup wizard.



**Listed below are some of the items included in the Media Center Setup Wizard:**

**▶ Check for the Internet connection**

An Internet connection allows your Media Center to update and download the TV Program Guide and to display the information of your music CDs and other media.

**Important**

*It is necessary to subscribe with and Internet Service Provider (ISP) to have an Internet connection.*

**▶ Configure the TV signal source, and TV Program Guide**

This item makes sure your Media Center receive the TV signal and TV Program Guide correctly. If you have a satellite receiver or a cable box, the setup wizard will make your remote control to work with them.

**Important**

*You can change the Media Center's settings in the Setting Menu.*

**▶ Optimize how Media Center looks on the display**

You can change display settings such as brightness, contrast, RGB colour and centering.

**▶ Set up the speaker**

Select how many speakers you have and test them.

# Getting Started

**To make full use of Media Center and to ensure access to all of its features, complete the following items before getting started.**

▶ The Media Live is set up correctly.

▶ The remote control has two AA 1.5V alkaline batteries installed.

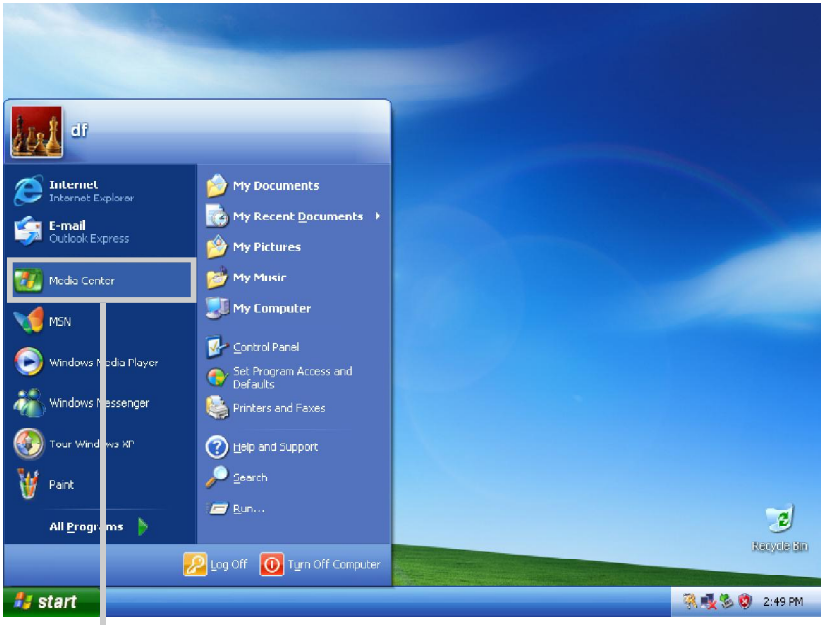
▶ The Media Live has a properly configured and working Internet connection.

▶ The Media Live is properly connected to your TV signal source.

## Opening the Media Center

1. Press the *Media Center Green Start Button* on the remote control. Or,

2. Click *Start* on the taskbar, and then click *Media Center*.



## Media Center Start Menu Overview

1. Enter the menu to exit Media Center, to turn off or to restart the Media Live, to log off and to end up your Media Center, to put the MediaLive into standby mode, or to switch users.
2. Here you can open the Media Center Start menu.
3. Here you can go back to the previous screen.
4. Here you can find Media Center Help.
5. Here you can minimize the Media Center window.
6. Here you can resize the Media Center window.
7. Here you can close the Media Center window.

8. **Toolbar:** Here you can use media playback control includes play, stop, pause, skip, fast-forward, replay, rewind, record, volume up/down and channel up/down.
9. **Play DVD:** Here you can watch your DVD movies.
10. **Online Spotlight:** Here you can link to the Media Center official website for more offers and services. Please go to *http://www.microsoft.com/windowsxp/mediacenter/evaluation/onlinespotlight.mspx* for the latest information about Online Spotlight.
11. **My Videos:** Here you can watch your home video.
12. **My Pictures:** Here you can view digital pictures, play a slide show and print photos.
13. **My Music:** Here you can play music CDs or music files, creat and edit playlists and record music files to CDs.

## Other menu items not shown:

▶ **More Programs:** Here you can link to the Media Center official website for more utilities and programs. Please go to *http://www.microsoft.com/windowsxp/mediacenter/using/otherprograms.mspx* for the latest information about More Programs.

▶ **Settings:** Here you can change Media Center program settings.

▶ **My TV:** Here you can watch, record, burn and play back TV programs.

▶ **Radio:** Here you can listen to FM radio stations.

**Important**

*Some of the Media Center features listed above are for select models only.*

## Play DVD

In the Media Center Play DVD window, you can control the playback with your remote control. But if you play your DVD in another media program, the remote control will not be able to use.

1. Press the *Media Center Green Start Button* on the remote control.
2. Select *Play DVD* on the main menu to start.

**Click here**

### In *Play DVD* you can:

- ▶ Play and stop DVD movies.
- ▶ Change DVD movie language and DVD audio settings.

**Important**

*Simply press the More Information Buttons on the remote control to view more informaion about the DVD that you are watching.*

## Online Spotlight

Online Spotlight contains links to the Media Center information, offers and services.

1. Press the *Media Center Green Start Button* on the remote control.
2. Select *Online Spotlight* on the main menu to start.

**Click here**

### In *Online Spotlight* you can:

**▶ Music**

This item includes links to music service providers such as Napster and Live365.

**▶ Movies**

This item includes links to movie service providers such as MovieLink and Cinema Now. You can find information about popular films, view trailers, download movies and more.

**▶ News / Sports**

This item lists top stories from news and sports broadcasters such as MSNBC and ESPN.

**▶ Downloads**

This item includes services and information that can be downlaod.

## My Videos

In the Media Center My Videos window, you can play your home video files you created and video files you downloaded from the Internet.

1. Press the *Media Center Green Start Button* on the remote control.
2. Select *My Videos* on the main menu to start.

**Click here**

### In *My Videos* you can:

► Play Videos that are stored on your hard disk drive (HDD).

► Creat CDs or DVDs for your video files.

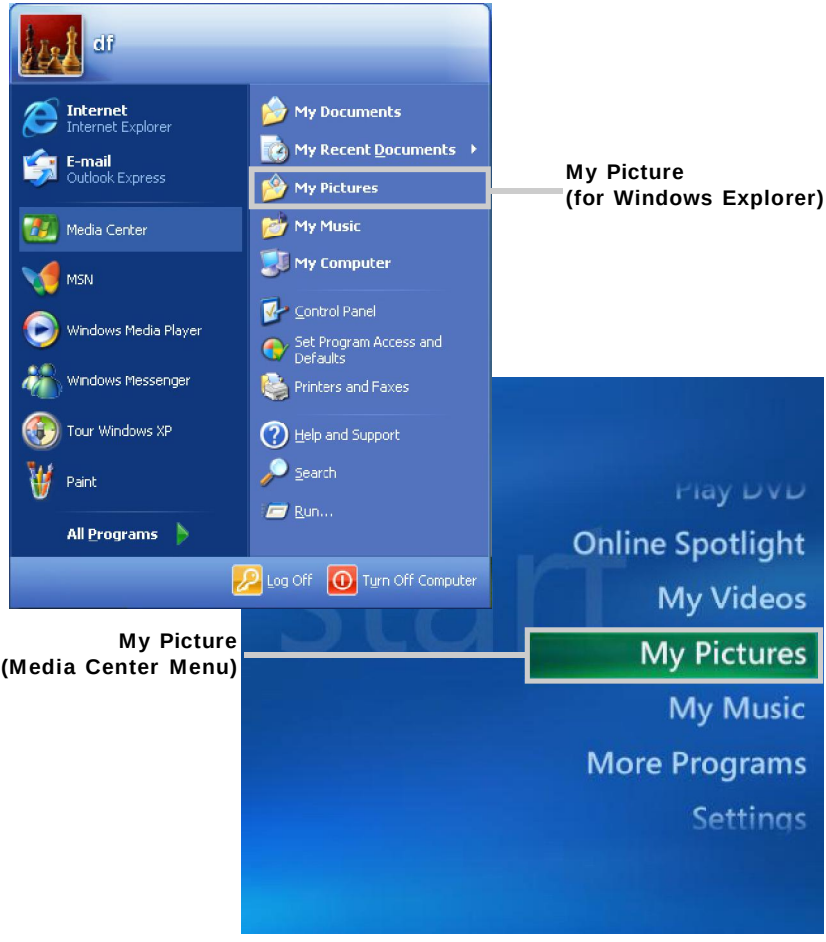
► View your videos in differnet screen mode.

► Display the video details such as the name and date that your video file was modified.

► View small image and title of video file.

## My Pictures

In the Media Center My Pictures window, you can view and print your pictures from the folders you created in the My Pictures directory of Windows Explorer. In fact, My Pictures is a folder on your hard disk drive (HDD) in the My Documents folder. It is also a Media Center menu item that allows you to view and to search for your digital images by using the remote control or the keyboard and mouse.



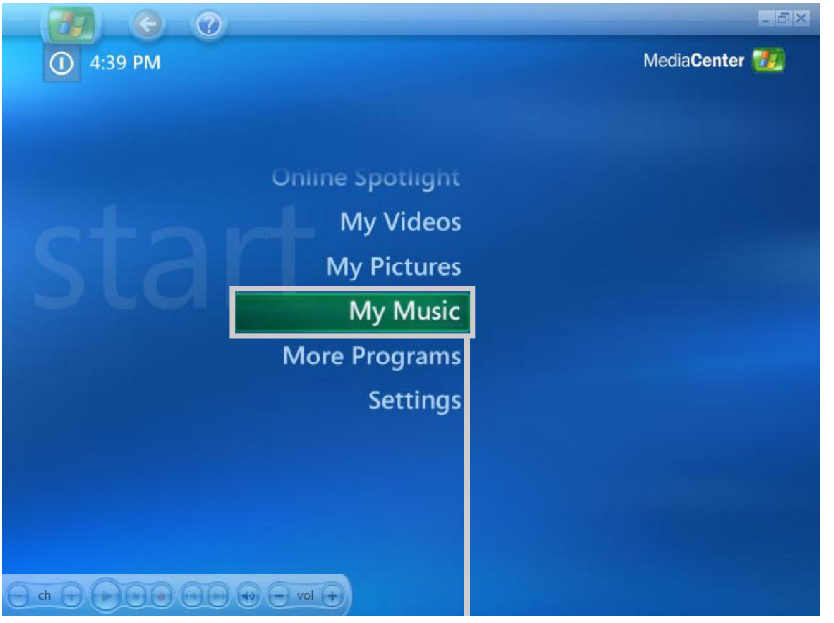

**In *My Pictures* you can:**

▶ View, organize, edit, print, share and protect your digital images.

## My Music

In the Media Center My Music window, you can copy your digital music files and organize a music library. In fact, *My Music in Media Center* is designed to work with the *Windows Media Player* program. That means, music files that are added from *My Music in Media Center* are copied into the *Windows Media Player Library* and are accessible from Media Center.

1. Press the *Media Center Green Start Button* on the remote control.
2. Select *My Music* on the main menu to start.




**Click here**

### In *My Music* you can:

- ▶ Play CDs or music tracks from your created Windows Media Player Library.
- ▶ Select and edit a personalized queue of songs from your library.
- ▶ Delete songs from a library and queue list.
- ▶ Burn your songs to CDs.
- ▶ Back up your music tracks to DVDs.

## More Programs

More Programs contains links to programs, services and common tasks.

1. Press the *Media Center Green Start Button* on the remote control.
2. Select *More Programs* on the main menu to start.

**Click here**

### In *More Programs* you can:

**▶ Creat CD / DVD**

This item includes a link to a CD creation wizard that helps you find the media files you want to copy to CD or DVD.

**▶ Messenger**

This item opens an instant message log on window.

**▶ Sync to Device**

This item allows you to automatically transfer your music, photo, video and recorded TV files from MediaLive to a portable device.

# Settings

In the Media Center Settings window, you can change settings for watching TV, for viewing pictures and slide shows, for controlling sound and for the display of all the Media Center windows.

1. Press the *Media Center Green Start Button* on the remote control.
2. Select *Settings* on the main menu to start.
3. Select a category.
3. Select one of the settings listed. Then use the arrow buttons to select an option or follow the onscreen instructions.

**Click here**

## In *Settings* you can:

**▶ TV**

Here you can set up TV signal, audio, and closed captioning. You can also download and edit the TV Program Guide, view and clear recording history, set hard disk drive recorder storage space, configure your display and set recording defaults.

**Important**

*Some settings such as "Parental Control" and "Caption Display" settings for TV and DVDs are included with select models only. Not all channels support closed captioning.*

**▶ Pictures**

Here you can set up slide show settings.

**▶ Music**

Here you can select visualizations or song information to display when playing music.

**▶ DVDs**

Here you can select a language for subtitles, audio tracks and menus for your DVDs, and setup the remote control buttons and select the closed captioning for your DVDs. You can also set up audio settings for your speakers, you must use a mouse or a keyboard to select the audio settings.

**▶ Messenger and Caller ID**

Here you can allow instant messages within Media Center and set up notifications for caller ID.

**▶ Radio**

Here you can organize or delete pre-set radio stations.

**▶ General**

**Startup and Window behavior.**

**Visual and Sound Effects -** Here you can set up transition animations and sounds when navigating in Media Center.

**More Programs Options -** Here you can change settings for other pro grams on the MediaLive.

**Media Center Setup -** Here you can configure your Internet connection, TV signal, speakers, TV and mointor; access Windows updates; run Media Ceter Setup again; set up remote desktop and reset Start Page defaults.

**Parental Controls -** Here you can block unwanted TV channels and block unwanted TV and movie ratings, change access code and reset parental controls.

**Automatic Downloads Options -** Here you can get media information about CDs, DVDs and movies from the Internet and to select HOW to down load the TV Program Guide.

**► Help**

Here you can find help about HOW to use Media Center and your hardware.

**Important**

*Best resolution settings are:*

*1. 640 x 480 for standard definition TVs* ***smaller*** *than 32".*

*2. 800 x 600 for standard definition TVs* ***larger*** *than 32".*

*3. 1024 x 768 for high definition TVs.*

# My TV

In the Media Center My TV window, you can watch Live TV and record your favorite shows. Just use the TV Program Guide to find the show you want to watch and record. From the My TV window, you can also search and play your favorite TV shows.

1. Press the *Media Center Green Start Button* on the remote control.
2. Select *My TV* on the main menu to start.

**Click here**

## In *My TV* you can:

▶ **Live TV:** Here you can watch, pause, fast-forward, and rewind your favorithe TV shows. You can watch recorded TV shows while recording another show. (Use the *More Information button* on the remote control to display TV show informaion).
▶ **Recorded TV:** Here you can view a list of recorded programs by date or title, view a list of programs scheduled to be recorded, play a recorded program and add a TV recording manually.
▶ **Search**: Here you can quickly find a TV program to watch or record by entering a descriptive word such as program tiltle and a program category.
▶ **Guide:** Here you can find programs to watch and record by scrolling throught the free TV Program Guide. (Not all available in every country and region.)

# Radio

Media Center can play FM readio if your MediaLive is equipped with a radio tuner input. In the Media Center Radio window, you can play FM radio stations by using your rmote control.

1. Press the *Media Center Green Start Button* on the remote control.
2. Select *Radio* on the main menu to start.

## In *Radio* you can:

▶ Listen to all FM radio stations.

▶ Set up your favorite radio stations.

▶ Organize your radio station presets.

▶ Use the time-shifting features such as pause, rewind and fast-forward.

## Remote Control

The remote control is designed to work with Media Live. You can use your remote control with MdeiaLive to play CDs and DVDs, to view pictures, and to watch and record television programs. This remote control helps you navigate the MediaLive windows on your computer just as a TV remote control helps you navigate cable TV options or control the playback of a movie in a VCR or DVD player.

### With this *Remote Control* you can:

▶ Navigate and control all MediaLive windows.

▶ Control the video or live TV display.

▶ Make the computer in and out of standby mode.

▶ Shut down or restart the MediaLive.

▶ Log off from MediaLive and switch users.

### With this *Remote Control* you cannot:

▶ Navigate the Windows desktop or control other computer programs outside of MediaLive.

▶ Be used as a VCR, DVD player, or stereo remote control.

▶ Turn on of off a TV that is connected to your MediaLive.

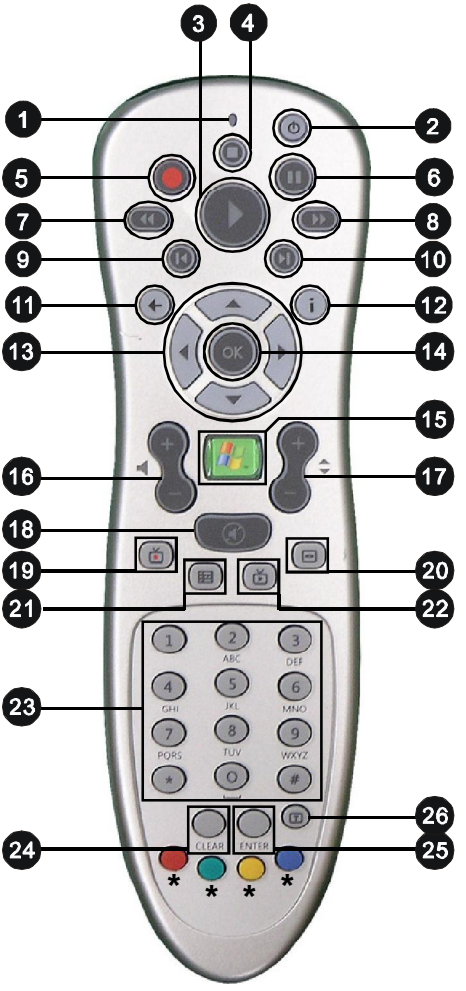
▶ Turn on the MediaLive.

**Important**

*The best operate range for this remote control is around 26 feet. Please make sure that there is nothing blocking the pathway between your remote control and the remote sensor.*

## Media Center Remote Control Buttons Overview

(Description and location may vary)




* Function will shown in the red / green / yellow / blue area at the bottom of screen. The information provided varies based on your area and television network.

**The following description shows the Media Center remote control buttons.**

1. **LED:** Activity indicator lights on pressing a button.
2. **Away:** Puts the MediaLive into and out of a Power Reduced Away Mode. It does not turn the MediaLive off.
3. **Play:** Plays the selected media.
4. **Stop:** Stops the selected media.
5. **Rec:** Records a selected TV program and stores it on the hard disk drive.
6. **Pause:** Pauses audio and video tracks and live or recorded TV programs.
7. **Rew:** (Rewind) Moves the media backward. (press button for 3 speeds)
8. **Fwd:** (Fast-forward) Moves media forward. (press button for 3 speeds)
9. **Replay:** Rewinds live or recorded TV for 8 seconds, or beginning of music track , or DVD chapter.
10. **Skip:** Moves media forward - for example, 30 seconds in videos and live TV, or one music track , or one DVD chapter.
11. **Back:** Returns to the previous window within Media Center.
12. **More:** (Information) Displays available information about a selected media file and displays more information and options.
13. **Arrow:** Buttons move the cursor to navigate within all Media Center windows. They also move forward and backward through slideshow images.

14 **OK:** Selects the desired action or window option. It acts as the Enter Key.

15 **Media Center:** Opens Media Center to the main menu.

16 **Volume:** Increase (+) and decrease (-) sound.

17 **CH / PG:** Up (+) and down (-) change the TV channel or move pages up and down, depending on available options.

18 **Mute:** Turns sound off. The word Mute is displayed on the Media Center screen when Mute is turned on.

19 **Recorded TV:** Opens the recorded TV window.

20 **DVD Menu:** Opens the play DVD window in Media Center or opens the main menu of a DVD movie, if available.

21 **Guide:** Opens the TV Program Guide to display available TV channels and programs to watch and record.

22 **Live TV:** A shortcut to the fullscreen view of Live TV. It also moves to the current point in a Live TV program after pausing Live TV.

23 **0-9, A-Z, #, *:** The numeric keypad buttons to change channels or enter text into the Media Center search or text box.

24 **Clear:** Deletes the selection and works as the Backspace key does on a keyboard.

25 **Enter:** Selects the desired action or window option. In fullscreen mode, press Enter to jump to the last channel you were watching.

**26** **Teletext / Close Capture:** If available in your area, Teletex is a free service that provides varied information such as news, weather, sports results, and other items of interest. Press the Teletext button and follow the on-screen prompts to navigate through the available services.

* The four coloured buttons are for Media Center navigation. You can either access subcapters by clicking on the buttons or enter the page number by typing.

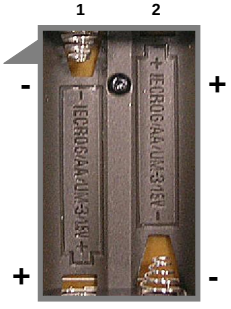
**Important**

*If you turn off your MediaLive, it will not record any scheduled TV program. The Media Live must be turned on or be in standby mode to record TV programs.*

## Installing the Remote Control Batteries

1. Open up the battery cover from the back of the remote control.
2. Insert two AA 1.5V alkaline batteries. (provided)
3. Replace the battery cover.
4. Test the remote control by pressing any key. The indicator light should blink.

**Back View**
**Open up the battery cover this direction**




**Battery Container**
**IECR06/AA/UM-3/1.5V**

**Important**

*Make sure the battery positive and negative ends are inserted correctly.*

# Appendix A
# Realtek ALC883 Audio

The Realtek ALC883 provides 10-channel DAC that simultaneously supports 7.1 sound playback and 2 channels of independent stereo sound output (multiple streaming) through the Front-Out-Left and Front-Out-Right channels.

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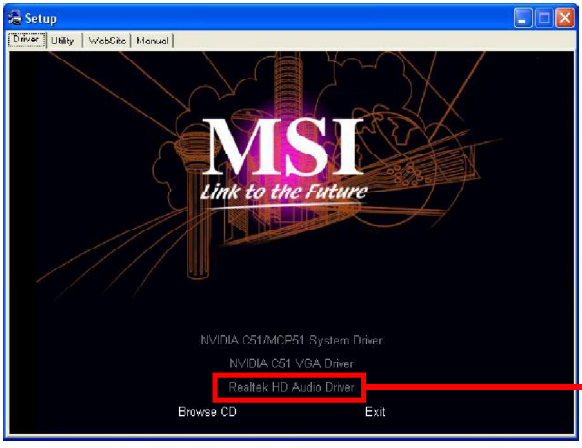
# Installing the Realtek HD Audio Driver

You need to install the driver for Realtek ALC883 codec to function properly before you can get access to 2-, 4-, 6-, 8- channel or 7.1+2 channel audio operations. Follow the procedures described below to install the drivers for different operating systems.

## Installation for Windows 2000/XP

For Windows® 2000, you must install Windows® 2000 Service Pack4 or later before installing the driver. For Windows® XP, you must install Windows® XP Service Pack1 or later before installing the driver.
The following illustrations are based on Windows® XP environment and could look slightly different if you install the drivers in different operating systems.

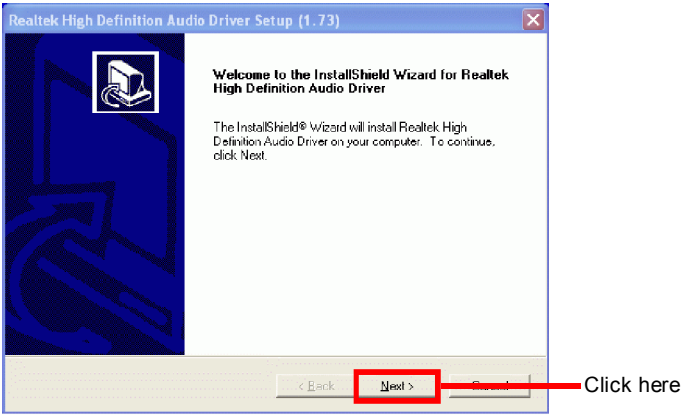
1. Insert the application CD into the CD-ROM drive. The setup screen will automatically appear.
2. Click **Realtek HD Audio Driver**.



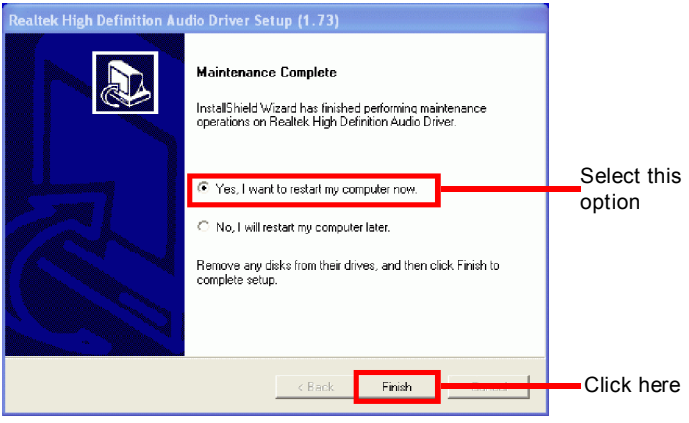

**Important**

*The **HD Audio Configuration** software utility is under continuous update to enhance audio applications. Hence, the program screens shown here in this section may be slightly different from the latest software utility and shall be held for reference only.*

3. Click **Next** to install the Realtek High Definition Audio Driver.

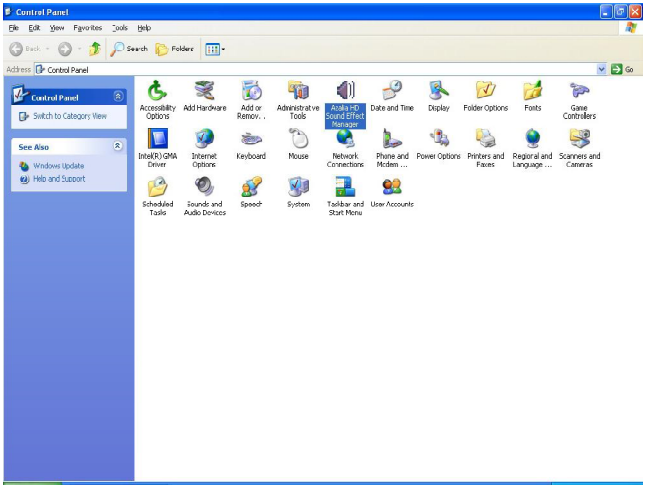

Realtek High Definition Audio Driver Setup (1.73)
Welcome to the InstallShield Wizard for Realtek High Definition Audio Driver
The InstallShield® Wizard will install Realtek High Definition Audio Driver on your computer. To continue, click Next.
< Back
Next >
Cancel
Click here

4. Click **Finish** to restart the system.


Realtek High Definition Audio Driver Setup (1.73)
Maintenance Complete
InstallShield Wizard has finished performing maintenance operations on Realtek High Definition Audio Driver.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish
Cancel
Select this option
Click here

## Software Configuration

After installing the audio driver, you are able to use the 2-, 4-, 6- or 8- channel audio feature now. Click the audio icon from the system tray at the lower-right corner of the screen to activate the **HD Audio Configuration**. It is also available to enable the audio driver by clicking the **Azalia HD Sound Effect Manager** from the **Control Panel**.



## Sound Effect

Here you can select a sound effect you like from the **Environment** list.

**Environment Simulation**

You will be able to enjoy different sound experience by pulling down the arrow, totally 23 kinds of sound effect will be shown for selection. Realtek HD Audio Sound Manager also provides five popular settings “Stone Corridor”, “Bathroom”, “Sewer pipe”, “Arena” and “Audio Corridor” for quick enjoyment.

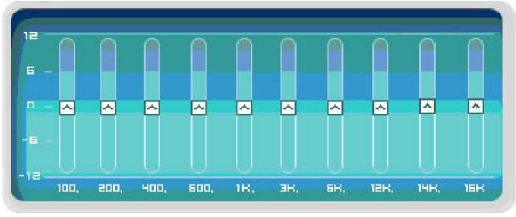
You may choose the provided sound effects, and the equalizer will adjust automatically. If you like, you may also load an equalizer setting or make an new equalizer setting to save as an new one by using the “**Load EQ Setting**” and “**Save Preset**” button, click “**Reset EQ Setting**” button to use the default value, or click “**Delete EQ Setting**” button to remove a preset EQ setting.

There are also other pre-set equalizer models for you to choose by clicking “**Others**” under the **Equalizer** part.

**Equalizer Selection**

Equalizer frees users from default settings; users may create their owned preferred settings by utilizing this tool.

10 bands of equalizer, ranging from 100Hz to 16KHz.




***Save***
The settings are saved permanently for future use

***Reset***
10 bands of equalizer would go back to the default setting

***Enable / Disable***
To disable, you can temporarily stop the sound effect without losing the settings

***Load***
Whenever you would like to use preload settings, simply click this, the whole list will be shown for your selection.

***Delete***
To delete the pre-saved settings which are created from previous steps.

**Frequently Used Equalizer Setting**

Realtek recognizes the needs that you might have. By leveraging our long experience at audio field, Realtek HD Audio Sound Manager provides you certain optimized equalizer settings that are frequently used for your quick enjoyment.

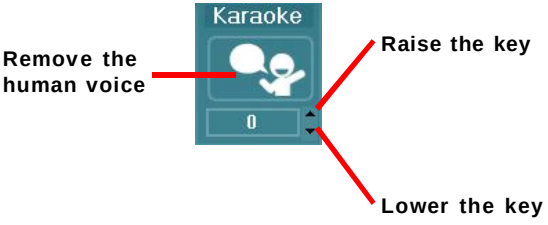
[How to Use It]

Other than the buttons “Pop” “Live” “Club” & “Rock” shown on the page, to pull down the arrow in “Others”, you will find more optimized settings available to you.

**Karaoke Mode**

Karaoke mode brings Karaoke fun back home. Simply using the music you usually play, Karaoke mode can help you eliminate the vocal of the song or adjust the key to accommodate your range.

1. Vocal Cancellation: Single click on “Voice Cancellation”, the vocal of the song would be eliminated, while the background music is still in place, and you can be that singer!
2. Key Adjustment: Using “Up / Down Arrow” to find a key which better fits your vocal range.



## Mixer

In the **Mixer** part, you may adjust the volumes of the rear and front panels individually.
1. Adjust Volume
You can adjust the volume of the speakers that you pluged in front or rear panel.

**Important**

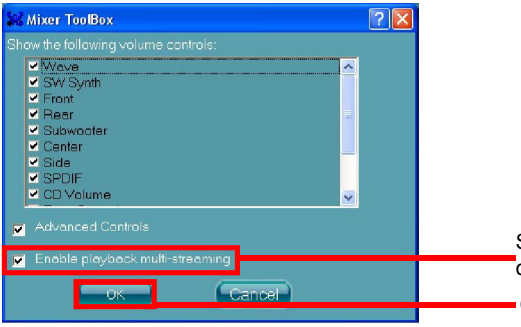
*Before set up, please make sure the playback devices are well plugged in the jacks on the rear or front panel.*

**2. Multi-Stream Function**
ALC883 supports an outstanding feature called Multi-Stream, which means you may play different audio sources simultaneously and let them output respectively from the indicated real panel or front panel. This feature is very helpful when 2 people are using the same computer together for different purposes.

Click the button and the Mixer **ToolBox** menu will appear. Then check the **Enable playback multi-streaming** and click **OK** to save the setup.

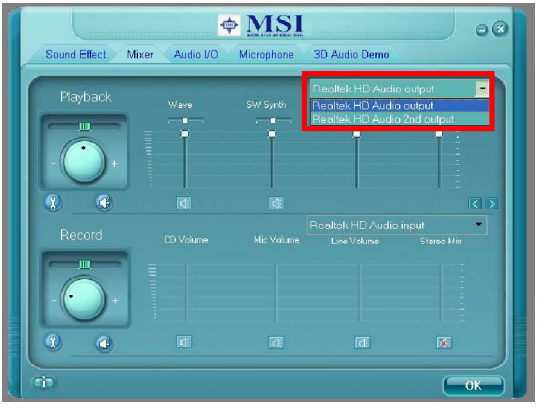
**Important**

*You have to plug the device into the jacks on the rear and front panel first before enable the multi-stream function.*




When you are playing the first audio source (for example: use Windows Media Player to play DVD/VCD), the output will be played from the rear panel, which is the default setting.

Then you **must** to select the **Realtek HD Audio 2nd output** from the scroll list **first**, and use a different program to play the second audio source (for example: use Winamp to play MP3 files). You will find that the second audio source (MP3 music) will come out from the Line-Out audio jack of Front Panel.



### 3. Playback control

**Mute**

You may choose to mute single or multiple volume controls or to completely mute sound output.

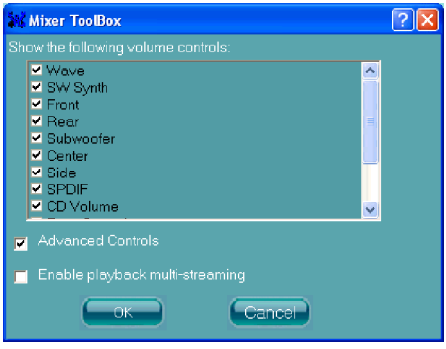
**Tool**

- *Show the following volume controls*

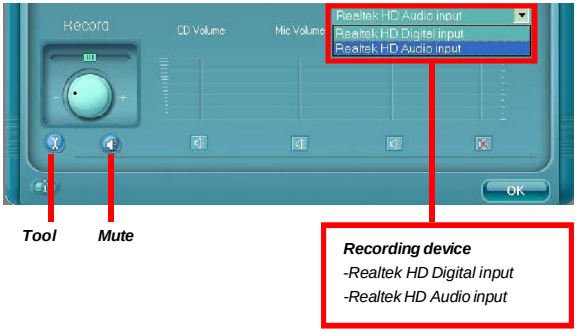
This is to let you freely decide which volume control items to be displayed.

- Advanced controls
- Enable playback multi-streaming

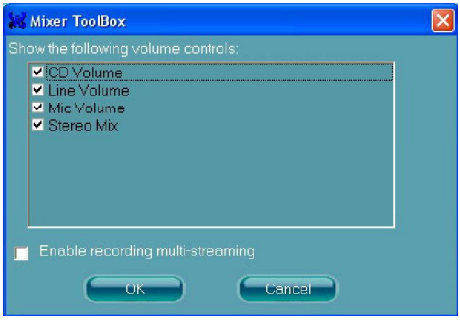
With this function, you will be able to have an audio chat with your friends via headphone (stream 1 from front panel) while still have music (stream 2 from back panel) in play. At any given period, you can have maximum 2 streams operating simultaneously.



### 4. Recording control




**Mute**
You may choose to mute single or multiple volume controls or to completely mute sound input.
**Tool**
*- Show the following volume controls*
This is to let you freely decide which volume control items to be displayed.
*- Enable recording multi-streaming*




**Important**

*ALC883 allows you to record the CD, Line, Mic and Stereo Mix channels simultaneously, frees you from mixing efforts. At any given period, you may choose 1 of the following 4 channels to record.*

## Audio I/O

In this tab, you can easily configure your multi-channel audio function and speakers. You can choose a desired multi-channel operation here.

a. **Headphone** for the common headphone
b. **2CH Speaker** for Stereo-Speaker Output
c. **4CH Speaker** for 4-Speaker Output
d. **6CH Speaker** for 5.1-Speaker Output
e. **8CH Speaker** for 7.1-Speaker Output

**Speaker Configuration:**

1. Plug the speakers in the corresponding jack.
2. Dialogue “connected device” will pop up for your selection. Please select the device you have plugged in.
   - If the device is being plugged into the correct jack, you will be able to find the icon beside the jack changed to the one that is same as your device.
   - If not correct, Realtek HD Audio Manager will guide you to plug the device into the correct jack.

### Connector Settings

Click to access connector settings.

Connector Settings
Connector Settings
Disable front panel jack detection
Mute rear panel output when front headphone plugged in.
Enable auto popup dialog, when device has been plugged in
OK
Cancel

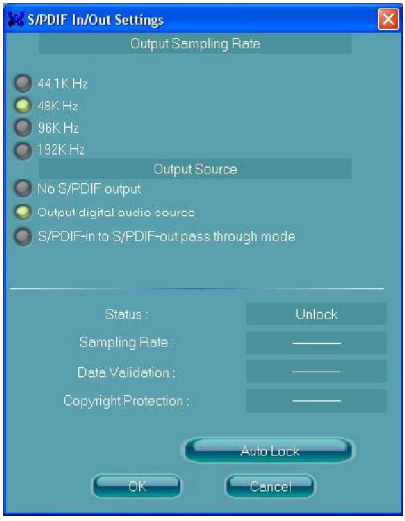
**Disable front panel jack detection (option)**
Jack detection function only works with HD audio front panel.

**Mute rear panel output when front headphone plugged in.**

**Enable auto popup dialogue, when device has been plugged in**
Once this item checked, the dialog “Connected device” would not automatically pop up when device plugged in.

**S/PDIF**

Short for Sony/Philips Digital Interface, a standard audio file transfer format. S/PDIF allows the transfer of digital audio signals from one device to another without having to be converted first to an analog format. Maintaining the viability of a digital signal prevents the quality of the signal from degrading when it is converted to analog.




**Output Sampling Rate**

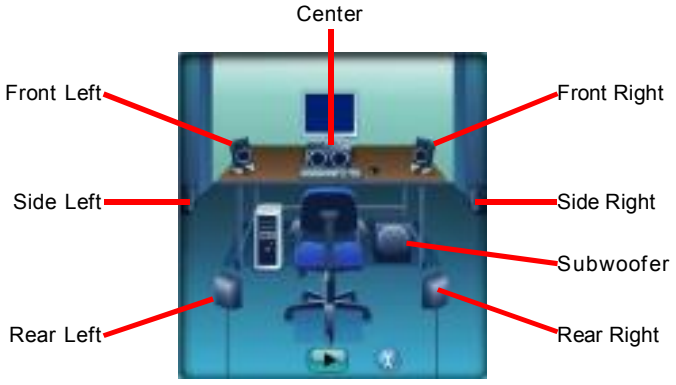
44.1KHz: This is recommend while playing CD.
48KHz: This is recommended while playing DVD or Dolby.
96KHz: This is recommended while playing DVD-Audio.
192KHz: This is recommended while playing High quality Audio.

**Output Source**

No S/PDIF out: There will no S/PDIF out.
Output digital audio source: The digital audio format (such as .wav, .mp3,.midi etc) will come out through S/PDIF-Out.
S/PDIF-in to S/PDIF -out pass though mode: The data from S/PDIF-In can be real-time played from S/PDIF-Out.

**Test Speakers**

You can select the speaker by clicking it to test its functionality. The one you select will light up and make testing sound. If any speaker fails to make sound, then check whether the cable is inserted firmly to the connector or replace the bad speakers with good ones. Or you may click the **auto test** button to test the sounds of each speaker automatically.



## Microphone

In this tab you may set the function of the microphone. Select the **Noise Suppression** to remove the possible noise during recording, or select **Acoustic Echo Cancelltion** to cancel the acoustic echo druing recording.

**Acoustic Echo Cancelltion** prevents playback sound from being recorded by microphone together with your sound. For example, you might have chance to use VOIP function through Internet with your friends. The voice of your friend will come out from speakers (playback). However, the voice of your friend might also be recorded into your microphone then go back to your friend through Internet. In that case, your friend will hear his/her own voice again. With AEC(Acoustic Echo Cancellation) enabled at your side, your friend can enjoy the benefit with less echo.

## 3D Audio Demo

In this tab you may adjust your 3D positional audio before playing 3D audio applications like gaming. You may also select different environment to choose the most suitable environment you like.

## Information

In this tab it provides some information about this HD Audio Configuration utility, including Audio Driver Version, DirectX Version, Audio Controller & Audio Codec. You may also select the language of this utility by choosing from the **Language** list.

Also there is a selection **Show icon in system tray**. Switch it on and an icon will show in the system tray. Right-click on the icon and the **Audio Accessories** dialogue box will appear which provides several multimedia features for you to take advantage of.

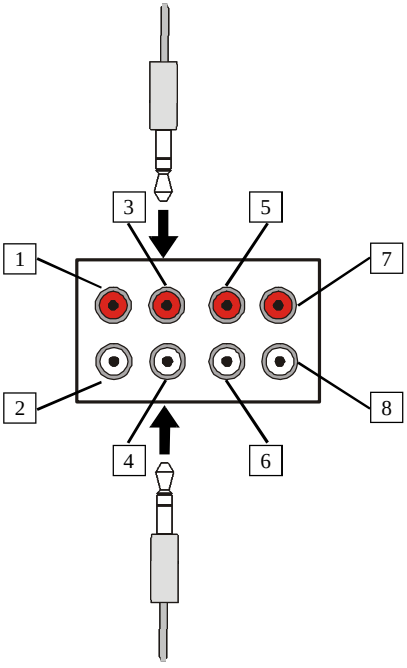
# Hardware Setup

**Connecting the Speakers**

When you have set the Multi-Channel Audio Function mode properly in the software utility, connect your speakers to the correct phone jacks in accordance with the setting in software utility.

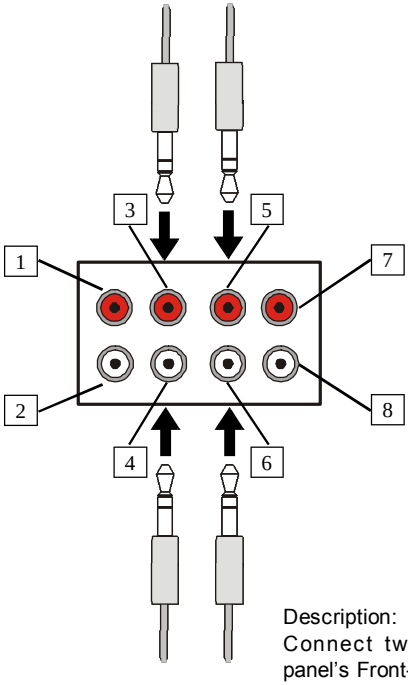
**n 2-Channel Mode for Stereo-Speaker Output**

Refer to the following diagram and caption for the function of each phone jack on the back panel when 2-Channel Mode is selected.




1. Line Out (Side surround channels) Right.
2. Line Out (Side surround channels) Left.
3. Line Out (Front channels) Right.
4. Line Out (Front channels) Left.
5. Line Out (Rear surround channels) Right.
6. Line Out (Rear surround channels) Left.
7. Line Out (Center channel)
8. Line Out (Subwoofer channel)

**n 4-Channel Mode for 4-Speaker Output**

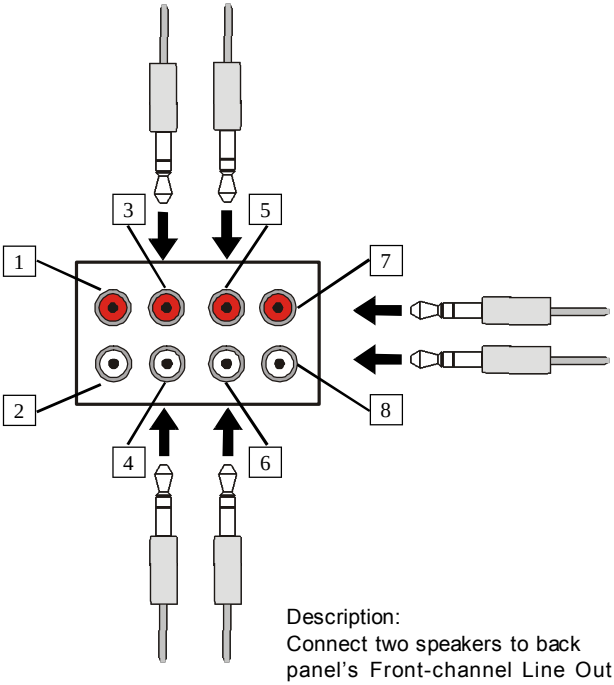



Description:
Connect two speakers to back panel's Front-channel Line Out connector and two speakers to the Rear-channel Line Out connector.

**4-Channel Analog Audio Output**

1. Line Out (Side surround channels) Right.
2. Line Out (Side surround channels) Left.
3. Line Out (Front channels) Right.
4. Line Out (Front channels) Left.
5. Line Out (Rear surround channels) Right.
6. Line Out (Rear surround channels) Left.
7. Line Out (Center channel)
8. Line Out (Subwoofer channel)

**n 6-Channel Mode for 6-Speaker Output**

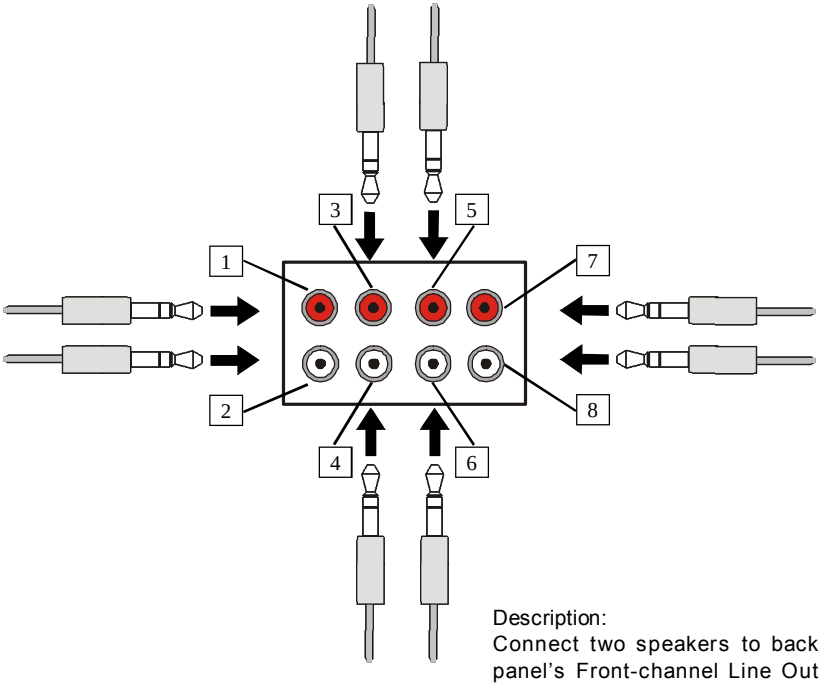



Description:
Connect two speakers to back panel's Front-channel Line Out connector, two speakers to the Rear-channel Line out connector and two speakers to the Center/ Subwoofer-channel Line Out connector.

**6-Channel Analog Audio Output**

1. Line Out (Side surround channels) Right.
2. Line Out (Side surround channels) Left.
3. Line Out (Front channels) Right.
4. Line Out (Front channels) Left.
5. Line Out (Rear surround channels) Right.
6. Line Out (Rear surround channels) Left.
7. Line Out (Center channel)
8. Line Out (Subwoofer channel)

**n 8-Channel Mode for 8-Speaker Output**




Description:
Connect two speakers to back panel's Front-channel Line Out connector, two speakers to the Rear-channel Line out connector, two speakers to the Center/ Subwoofer-channel Line Out connector and two speakers to the Side-channel Line Out connector.

**8-Channel Analog Audio Output**

1. Line Out (Side surround channels) Right.
2. Line Out (Side surround channels) Left.
3. Line Out (Front channels) Right.
4. Line Out (Front channels) Left.
5. Line Out (Rear surround channels) Right.
6. Line Out (Rear surround channels) Left.
7. Line Out (Center channel)
8. Line Out (Subwoofer channel)

# Appendix B
# TV-Out Function

You need to install the TV-Out bracket before you can get access to the TV-out function. Follow the procedures described later to configure the display settings.

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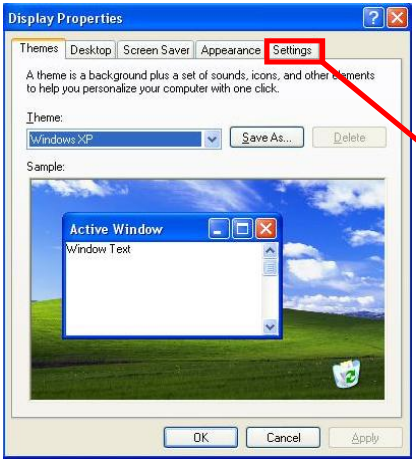
## Display Setup

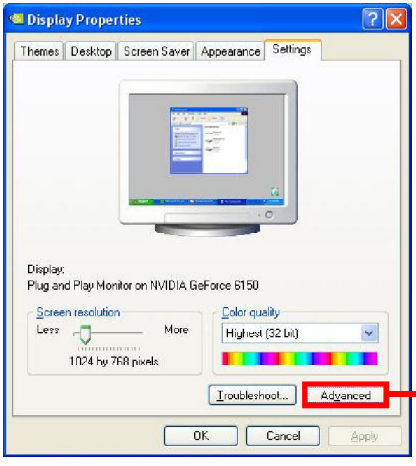
The following procedures describe display setup using Windows XP. Windows 2000 screens are slightly different but the procedures are the same as described.

To enable the TV-Out function, follow this procedure:



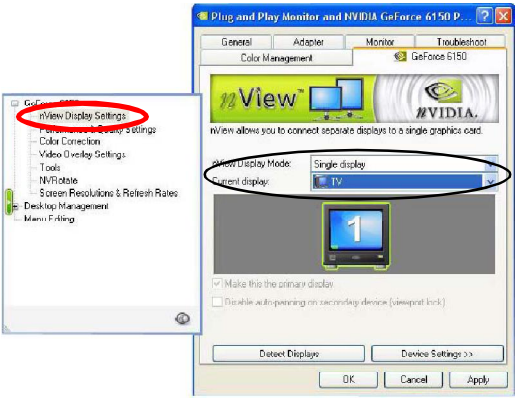

1. Restart the computer. After entering the Windows OS, left-click in the window and the screen will pop up a menu. Click **Properties**.

2. In the **Display Properties** dialog box, click the **Settings** tab.

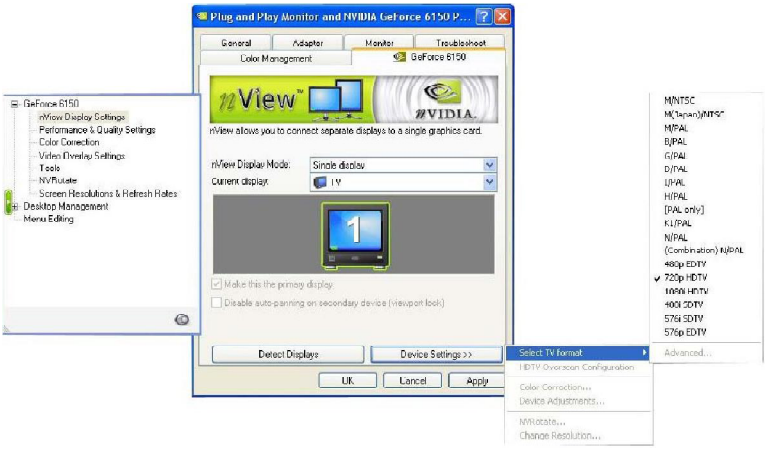



3. Click **Advanced** to continue.

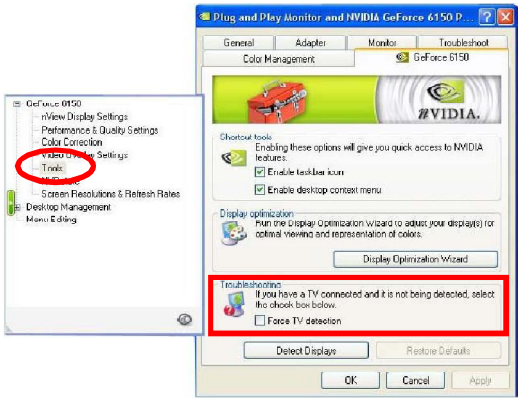
4. In the **nView Display Settings** field, choose the current display and display mode.




5. In the **Device Settings**, select the TV format.



If you have a TV connected and it is not being detected, you can check the "**Force TV detection**" box in the Tools field.




## Important

*Please note that the TV-out function can not work with the onboard D-Sub out function that is to say, you can not use the TV-out function and the onboard D-Sub out function simultaneously.*

# Appendix C
# nVidia RAID

NVIDIA brings Redundant Array of Independent Disks (RAID) technology—which is used by the world's leading businesses—to the common PC desktop. This technology uses multiple drives to either increase total disk space or to offer data protection. For all levels, RAID techniques optimize storage solutions by using multiple disks grouped together and treating them as a single storage resource.

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# Introduct ion

## System Requirement

**Operating System Support**

NVRAID supports the following operating systems:

Windows XP/ 2000

## RAID Arrays

NVRAID supports the following types of RAID arrays described in this section:

RAID 0: RAID 0 defines a disk striping scheme that improves the disk read and write times for many applications.

RAID 1: RAID 1 defines techniques for mirroring data.

Spanning (JBOD): JBOD provides a method for combining drives of different sizes into one large disk.

## Summary of RAID Configurations

| Array | Uses | Advantages | Drawbacks | # Hard Disks | Fault Tolerance |
|---|---|---|---|---|---|
| **RAID 0** | Non-critical data requiring high performance. | High data throughput. | No fault tolerance. | multiple | None |
| **RAID 1** | Small databases or any other small capacity environment requiring fault tolerance. | 100% data redundancy. | Requires 2 drives for the storage space of 1 drive. | 2 | Yes |
| **JBOD** | Combining odd size drives into one big drive. | Combines and uses the capacity of odd size drives. | Decreases performance because of the difficulty in using drives concurrently or to optimize drives for different uses. | Multiple | No |

# RAID Configuration

## Basic Configuration Instructions

The following are the basic steps for configuring NVRAID:

**Non-Bootable RAID Array**

1. Choose the hard disks that are to be RAID enabled in the system BIOS. (To enable the ***SATA 0/ 1 Primary/ Secondary Channel*** in **On-Chip ATA Devices** of **Integrated Peripherals** in BIOS.)
2. Specify the RAID level, either Mirroring (RAID 1), Striping (RAID 0), Striping and Mirroring (RAID 0+1), RAID 5 or JBOD and create the desired RAID array.
3. Enter the Windows OS, run the Windows nForce Setup application and install the RAID software. (Check p. C-9 for details.)
4. Initialize the NVRAID Array Disks.

**Bootable RAID Array**

1. Choose the hard disks that are to be RAID enabled in the system BIOS. (To enable the ***SATA 0/ 1 Primary/ Secondary Channel*** in **On-Chip ATA Devices** of **Integrated Peripherals** in BIOS.)
2. Specify the RAID level, either Mirroring (RAID 1), Striping (RAID 0), Striping and Mirroring (RAID 0+1), RAID 5 or JBOD and create the desired RAID array.
3. Boot from the Windows CD, use the floppy disk that has the RAID driver to copy and install the nForce RAID software. (Check p.C-7 for details.)
4. Initialize the NVRAID Array Disks.

## Setting Up the NVRAID BIOS

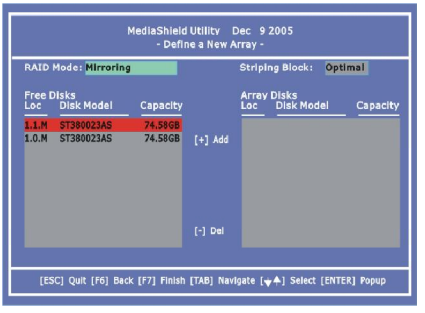
Be sure to enable the ***SATA 0/ 1 Primary/ Secondary Channel*** in **On-Chip ATA Device** of **Integrated Peripherals** in BIOS before configuring the NVRAID BIOS. After that press F10 to save the configuration and exit. The PC will reboot right away. Then enter the RAID BIOS Setup by pressing **F10** when prompted, and follow the procedures described below to set up the NVRAID BIOS.

NVRAID BIOS setup lets you choose the RAID array type and which hard drives you want to make part of the array.

**Entering the RAID BIOS Setup**

1. After rebooting your PC, wait until you see the RAID software prompting you to press **F10**. The RAID prompt appears as part of the system POST and boot process prior to loading the OS.
2. Press **F10**, and the NVIDIA RAID Utility --- **Define a New Array** window will appear.

   The default **RAID Mode** is set to ***Mirroring*** and **Striping Block** is set to ***Optimal***.



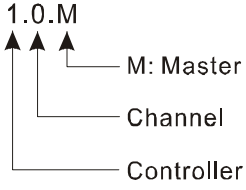
**Understanding the "Define a New Array" Window**

Use the Define a New Array window to

- Select the RAID Mode
- Set up the Striping Block
- Specify which disks to use for the RAID Array

Depending on the platform used, the system can have one or more channels. In a typical system there is usually one controller and multiple channels, and each channel has a slave and a master.

The channel/controller/master/slave status of each hard disk is given in the Loc (location) columns of the Free Disks and Array Disks lists.




In the example above, 1.0.M means the hard drive is attached to Channel 2, Controller 0, and the drive is set to Master. The following is a list of all possible combinations:

**Serial ATA**

| | |
|---|---|
| 1.0.M | Controller 1, Channel 0, Master (SATA1) |
| 1.1.M | Controller 1, Channel 1, Master (SATA2) |
| 2.0.M | Controller 2, Channel 0, Master (SATA3) |
| 2.1.M | Controller 2, Channel 1, Master (SATA4) |

**Important**

*There is no such thing as Slave drive in Serial ATA. All drives are considered to be Master since there is a one to one connection between the drive and the controller.*

**Using the Define a New Array Window**

If necessary, press the tab key to move from field to field until the appropriate field is highlighted.

**• Selecting the RAID Mode**

By default, this is set to [Mirroring]. To change to a different RAID mode, press the down arrow key until the mode that you want appears in the RAID Mode box—either [Mirroring], [Striping], [RAID5], [Spanning], or [Stripe Mirroring].

**• Selecting the Striping Block Size**

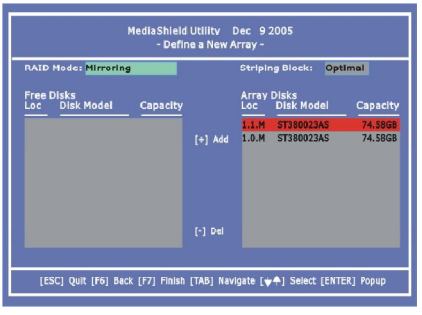
**Striping Block** size is given in kilobytes, and affects how data is arranged on the disk. It is recommended to leave this value at the default [Optimal], which is 32KB, but the values can be between [4 KB] and [128 KB].

**• Assigning the Disks**

The disks that you enabled from the RAID Config BIOS setup page appear in the **Free Disks** block. These are the drives that are available for use as RAID array disks.

To designate a free disk to be used as a RAID array disk,

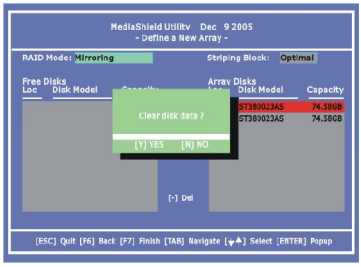
1. Tab to the **Free Disks** section. The first disk in the list is selected.
2. Move it from the Free Disks block to the Array Disks block by pressing the right arrow key (-->). The first disk in the list is moved, and the next disk in the list is selected and ready to be moved.
3. Continue pressing the right-arrow key (<-- ) until all the disks that you want to use as RAID array disks appear in the **Array Disks** block.



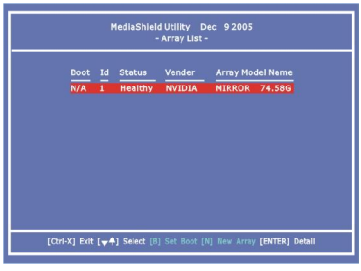

It shows that two disks have been assigned as RAID1 array disks in the figure above.

**Completing the RAID BIOS Setup**

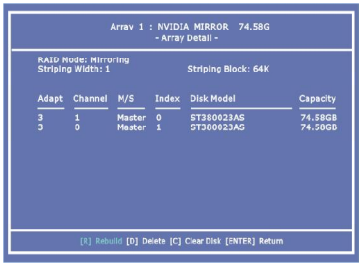
1. After assigning your RAID array disks, press **F7.** The Clear disk data prompt appears.




2. Press **Y** if you want to wipe out all the data from the RAID array, otherwise press **N**. You must choose **Yes** if the drives were previously used as RAID drives. The **Array List** window appears, where you can review the RAID arrays that you have set up.


MediaShield Utility Dec 9 2005
- Array List -
Boot Id Status Vender Array Model Name
N/A 1 Healthy NVIDIA MIRROR 74.58G
[Ctrl-X] Exit [↑↓] Select [B] Set Boot [N] New Array [ENTER] Detail

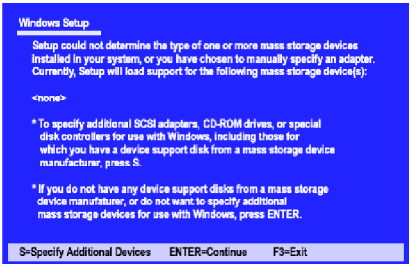
3. Use the arrow keys to select the array that you want to set up, then press **Enter.** The **Array Detail** window appears.


Array 1 : NVIDIA MIRROR 74.58G
- Array Detail -
RAID Mode: Mirroring
Striping Width: 1
Striping Block: 64K
Adapt Channel M/S Index Disk Model Capacity
3 1 Master 0 ST380023AS 74.58GB
3 0 Master 1 ST380023AS 74.58GB
[R] Rebuild [D] Delete [C] Clear Disk [ENTER] Return

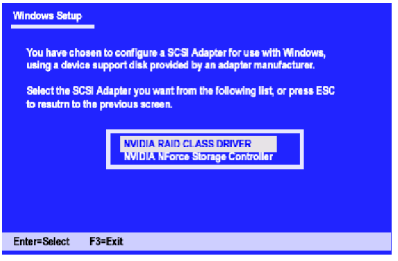
4. If you want to mark this disk as empty and wipe out all its contents then press **C**.
5. At the prompt, press **Y** to wipe out all the data, otherwise press **N**.
6. Press **Enter** again to go back to the previous window and then press **Ctrl+X** to exit the RAID setup. Now that the RAID setup has been configured from the RAID BIOS, the next step is to configure and load NVRAID drivers under Windows, as explained in “Installing the NVIDIA RAID Software Under Windows” on C-9.

## Installing the RAID Driver (for bootable RAID Array)

1. After you complete the RAID BIOS setup, boot from the Windows CD, and the Windows Setup program starts.
2. Press **F6** and wait for the Windows Setup screen to appear.


Windows Setup
Setup could not determine the type of one or more mass storage devices installed in your system, or you have chosen to manually specify an adapter. Currently, Setup will load support for the following mass storage device(s):
<none>
* To specify additional SCSI adapters, CD-ROM drives, or special disk controllers for use with Windows, including those for which you have a device support disk from a mass storage device manufacturer, press S.
* If you do not have any device support disks from a mass storage device manufacturer, or do not want to specify additional mass storage devices for use with Windows, press ENTER.
S=Specify Additional Devices ENTER=Continue F3=Exit

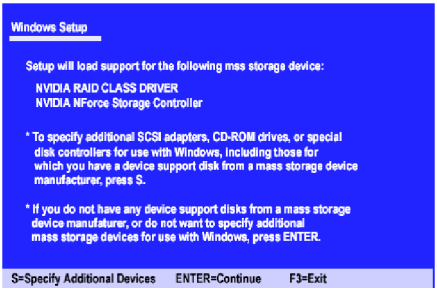
3. Specify the NVIDIA drivers:
   (1) Insert the floppy that has the RAID driver, press S, then press Enter. The Windows Setup screen appears as below:


Windows Setup
You have chosen to configure a SCSI Adapter for use with Windows, using a device support disk provided by an adapter manufacturer.
Select the SCSI Adapter you want from the following list, or press ESC to resutrn to the previous screen.
NVIDIA RAID CLASS DRIVER
NVIDIA NForce Storage Controller
Enter=Select F3=Exit

**Important**

*Please follow the instruction below to make an nVIDIA Serial ATA RAID driver for yourself.*
*1. Insert the MSI CD into the CD-ROM drive.*
*2. Click the "Browse CD" on the Setup screen.*
*3. Copy all the contents in the* ***:\\nVidia \System \MCP55 \IDE \Win XP\sataraid*** *to a formatted floppy disk.*
*4. The driver disk for nVIDIA RAID controller is done.*

   (2) Select "NVIDIA RAID CLASS DRIVER" and then press **Enter**.
   (3) Press **S** again at the Specify Devices screen, then press **Enter.**
   (4) Select "NVIDIA NForce Storage Controller" and then press **Enter.** The following Windows Setup screen appears listing both drivers:


Windows Setup
Setup will load support for the following mss storage device:
NVIDIA RAID CLASS DRIVER
NVIDIA NForce Storage Controller
* To specify additional SCSI adapters, CD-ROM drives, or special disk controllers for use with Windows, including those for which you have a device support disk from a mass storage device manufacturer, press S.
* If you do not have any device support disks from a mass storage device manufaturer, or do not want to specify additional mass storage devices for use with Windows, press ENTER.
S=Specify Additional Devices
ENTER=Continue
F3=Exit

4. Press **Enter** to continue with Windows XP Installation. Be sure to leave the floppy disk inserted in the floppy drive until the blue screen portion of Windows XP installation is completed, then take out the floppy.
5. Follow the instructions on how to install Windows XP. After Windows XP is completely installed, it is recommended that you install the the RAID management tool.

**Important**

*Each time you add a new hard drive to a RAID array, the RAID driver will have to be installed under Windows once for that hard drive. After that, the driver will not have to be installed.*

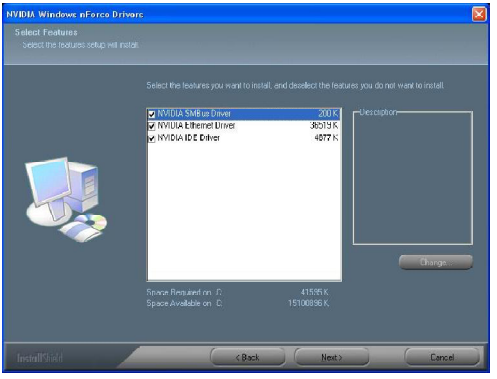
# NVIDIA IDE Driver/ RAID Utility Installation

## Installing the NVIDIA RAID Software Under Windows (for Non-bootable RAID Array)

The existing Windows IDE Parallel ATA driver (as well as the Serial ATA driver if SATA is enabled) must be upgraded to use the NVIDIA IDE Parallel ATA driver (as well as the NV Serial ATA driver if SATA is enabled).

This section describes how to run the setup application and install the RAID software which will upgrade the Windows IDE driver and install the RAID software.

1. Start the NVIDIA nForce Drivers installation program to open the NVIDIA Windows nForce Drivers page.




2. Select the modules that you want to install. Make sure that the "NVIDIA IDE Driver" is selected.

**Important**

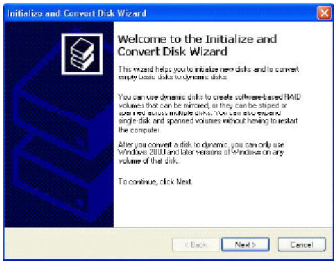
***You must install the NVIDIA IDE driver in order to enable NVIDIA RAID.*** *If you do not install the NVIDIA IDE driver, NVIDIA RAID will not be worked.*

3. Click **Next** and then follow the instructions.
4. After the installation is completed, be sure to reboot the PC.
5. After the reboot, initialize the newly created array.

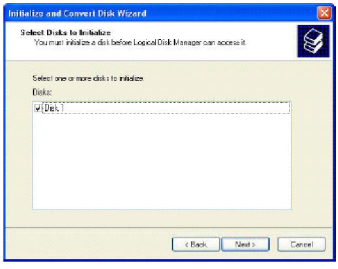
## Initializing and Using the Disk Array

The RAID array is now ready to be initialized under Windows.

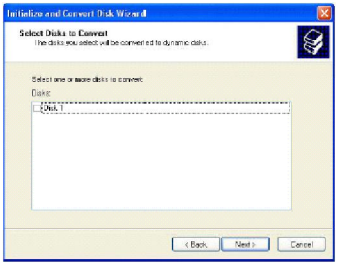
1. Launch Computer Management by clicking “Start” --> “Settings” --> “Control Panel” then open the “Administrative Tools” folder and double click on “Computer Management”.
2. Click “Disk Management” (under the “Storage” section). The Initialize and Convert Disk Wizards appears.



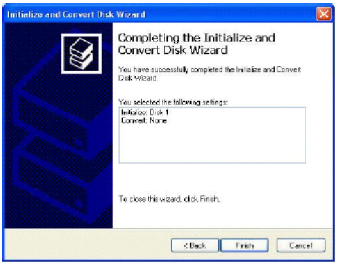

3. Click **Next**. The Select Disks to Initialize window appears. The disks listed depend on how many arrays you have configured.


Initialize and Convert Disk Wizard
Select Disks to Initialize
You must initialize a disk before Logical Disk Manager can access it.
Select one or more disks to initialize.
Disks:
Disk 1
< Back
Next >
Cancel

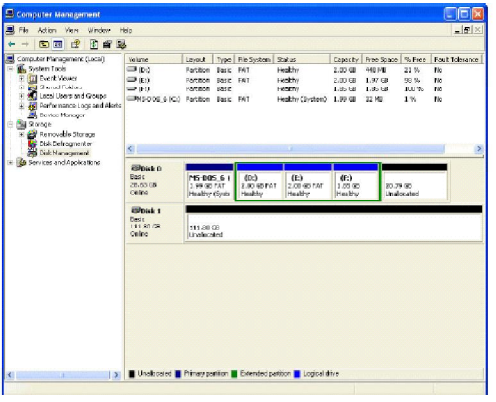
4. Click **Next**. The Select Disks to Convert window appears.



5. Check the disk in the list if you want to make the array a dynamic disk, then click **Next**. The Completing the Initialize and Convert Disk Wizard window appears.


Initialize and Convert Disk Wizard
Completing the Initialize and Convert Disk Wizard
You have successfully completed the Initialize and Convert Disk Wizard.
You selected the following settings:
Initialize: Disk 1
Convert: None
To close this wizard, click Finish.
< Back
Finish
Cancel

6. Click **Finish**. The “Computer Management” window appears.




The actual disks listed will depend on your system, and the unallocated partition is the total combined storage of two hard disks. You must format the unallocated disk space in order to use it.

7. Format the unallocated disk space. Right click “Unallocated space”, select “New Partition...” and follow the wizard. After the drive has been formatted, it is ready for use.

# NVRAID Management Utility

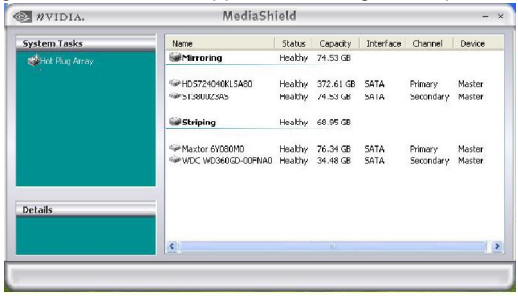
There is an application called NVRAIDMAN which helps you perform the following tasks of nVDIA RAID.

- **Viewing RAID Array Configurations**
  View an array configuration (mirrored, striped, mirror-striped, JBOD, or any supported combination)
- **Setting Up a Spare RAID Disk**
  - View free and/or dedicated free disks
  - Designate a free disk to a particular array
- **Creating RAID Arrays**
- **Deleting a RAID Array**
- **Morphing From One RAID Array to Another**
- **Hot Plug Array**
- **Initializing a RAID Array**
  - Erase the data on the array by writing all zeros to the sectors of each hard disk.
- **Rebuilding a RAID Mirrored Array**
  - Rebuild a broken mirrored array
  - Watch the progress of rebuilding an array
  - Only applies to RAID 1, RAID 0+1, and RAID 5 arrays
- **Synchronizing a RAID Array**
  - Rebuild the redundancy in RAID 1 or RAID 0+1 arrays (copy the data to the redundant disk—the same operation as rebuilding)
  - Rebuild the parity in RAID 5 arrays

## Viewing RAID Array Configurations

To view your RAID configuration from Windows, launch the NVRAID Management utility by double-clicking NvRaidMan.exe (the default location of NvRaidMan.exe is in \\nVidia\System\C51+MCP51\IDE\Win XP or 2k\raidtool\ of the setup CD accompanied with your mainboard).

The RAID configuration information appears in the right-side pane, as shown below.




**Important**

*The information in the figures in this part may very from what it is shown in your system.*

## Setting Up a Spare RAID Disk

You can designate a hard drive to be used as a spare drive for a RAID 1, RAID 0+1 or RAID 5 array. The spare drive can take over for a failed disk. NVRAID supports two types of spare drives:

**• Free Disk**

A free disk is a disk that is not part of any RAID array, but can be used by any available RAID 1 or RAID 0+1 array that requires a particular disk when one of its disks crashes or becomes unusable. The process is automatic and doesn't require any user interaction.

For example, if you have a system with four hard disks where one disk is used to boot the OS, two hard drives are set up in a mirrored array, and a fourth hard disk is set up as a free disk, then if one of the mirrored array drives fails, the free disk will be automatically assigned to the mirrored array to be used instead of the failed disk.

**• Dedicated Disk**

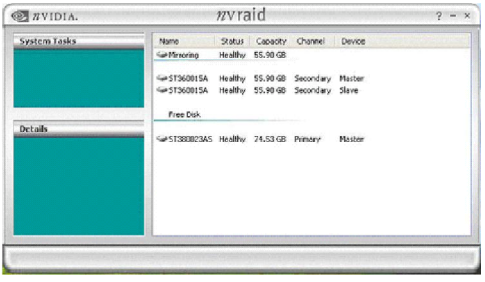
A dedicated free disk is a disk that is assigned to a RAID 1, RAID 0+1 or RAID 5 array and that disk is used by that array only when needed, for example during a system crash where a RAID mirrored drive is broken. The dedicated disk can be used only by the array that it is assigned to and not by any other array, unlike a free disk which can be used by any available RAID 1, RAID 0+1 or RAID 5 array.

Note: You must have at least two RAID arrays to use this feature.

**Assigning a Free Disk**

To mark a disk as free, or not a part of any array,

1. Enter the system BIOS setup and make sure that the drive that you want to mark as free is RAID enabled.
2. Enter the RAID BIOS and make sure that the drive is not part of any array (if one exists).
3. Boot into Windows and run the NVRAIDMAN program. The drive appears under the Free Disk section. The figure below shows an example of the NVRAIDMAN display if you have a mirror array and one free disk.



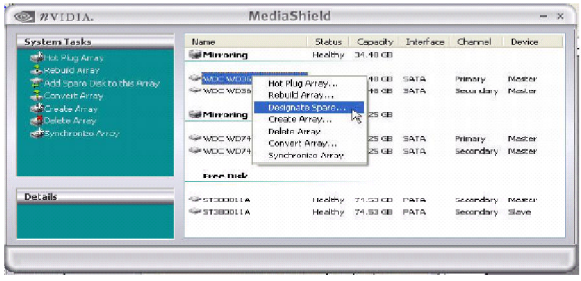
**Assigning a Dedicated Disk**
To mark a disk as dedicated, or reserve it for use by a specific array,

**Step 1: Mark the Disk as a Free Disk**
1. Enter the system BIOS setup and make sure that the drive that you want to mark as free is RAID enabled.
2. Boot into Windows and run the NVRAIDMAN program.

If the disk is not part of any RAID array, then it will appear under the Free Disk section of the RAID GUI.

**Step 2: Dedicate the Free Disk to an Array**
While running NVRAIDMAN, dedicate the free disk to an array by doing the following:

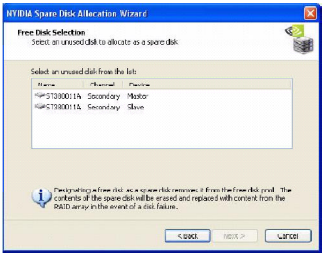
1. Right click one of the two Mirrored arrays as shown below.




2. Select **Designate Spare** from the menu to launch the Spare Disk Allocation Wizard.

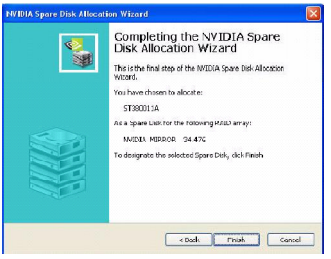
NVIDIA Spare Disk Allocation Wizard
Welcome to the NVIDIA Spare Disk Allocation Wizard
This wizard will guide you through the configuration and assignment of an array spare disk.
RAID 1 techniques allow you to designate spare disks to configured into an array in the event of a disk failure.
To continue, click Next.
< Back
Next >
Cancel

3. Click **Next**.
The RAID Array Selection page appears.

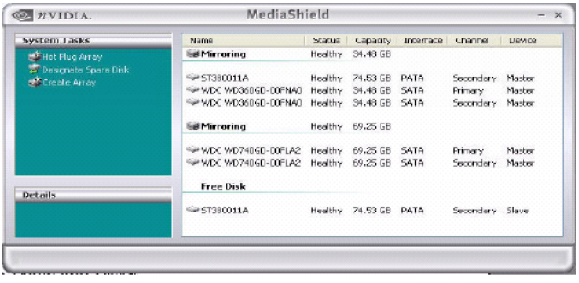

NVIDIA Spare Disk Allocation Wizard
Free Disk Selection
Select an unused disk to allocate as a spare disk
Select an unused disk from the list:
ST380011A Secondary Master
ST380011A Secondary Slave
< Back
Next >
Cancel

4. From the Free Disk Selection page, select one of the two free disks available. This would be the disk that will be designated to the mirror array.

5. Click **Next**.
The Completing the NVIDIA Spare Disk Allocation page appears.

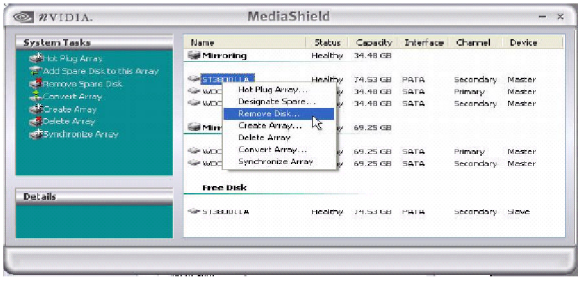

NVIDIA Spare Disk Allocation Wizard
Completing the NVIDIA Spare Disk Allocation Wizard
This is the final step of the NVIDIA Spare Disk Allocation Wizard.
You have chosen to allocate:
ST380011A
As a spare disk for the following RAID array:
NVIDIA MIRROR 34.47G
To designate the selected Spare Disk, click Finish.
< Back
Finish
Cancel

6. Click **Finish**.
As shown in figure below, the ST380011A drive is now a dedicated free disk in the mirrored array. If a system crash occurs that causes any of the two WD360GD drives to fail, the ST380011A hard drive will take over and be used in the newly formed mirrored array.


NVIDIA
MediaShield
System Tasks
Hot Plug Array
Designate Spare Disk
Create Array
Details
Name Status Capacity Interface Channel Device
Mirroring Healthy 34.48 GB
ST380011A Healthy 74.53 GB PATA Secondary Master
WDC WD360GD-00FNA0 Healthy 34.48 GB SATA Primary Master
WDC WD360GD-00FNA0 Healthy 34.48 GB SATA Secondary Master
Mirroring Healthy 69.25 GB
WDC WD740GD-00FLA2 Healthy 69.25 GB SATA Primary Master
WDC WD740GD-00FLA2 Healthy 69.25 GB SATA Secondary Master
Free Disk
ST380011A Healthy 74.53 GB PATA Secondary Slave

**Removing a Dedicated Disk**

Once a dedicated disk has been assigned to a particular array, it can be removed at any time. To remove the disk, right click on the dedicated disk and select “Remove Disk...” to remove it. In the previous example, simply right click on the ST380011A drive and select “Remove Disk...”. as shown in the screen shot below:



## Morphing From One RAID Array to Another

In a traditional RAID environment, when a user wants to change the current state of a disk or a current array to a new RAID configuration, the process of reconfiguring the new array involves multiple steps. The user must back up the data, delete the array, re-boot the PC, and then reconfigure the new array.
NVIDIA RAID allows the end user to change the current state of the disk or array to another with a one-step process called .Morphing.. This section describes the NVIDIA Morphing process and explains how to use Morphing to convert from one RAID array type to another.

### General Morphing Principles

NVIDIA RAID includes extensive support for morphing, a process of converting from one RAID mode to another RAID mode.

### General Requirements and Limitations

• The new array capacity must be equal to or greater than the previous array.
For example, it is possible to morph from a RAID 1 array to a RAID 0 array as long as the RAID 0 array is the same size as (or larger than) the RAID 1 array.
• You can't morph
- To or from a JBOD (Spanning) array
- From RAID 1 to RAID 1
- From RAID 0+1 to RAID 1
- From RAID 5 to 1

### Specific Morphing Requirements

The following table lists the disk requirements for a new RAID array for various morphing combinations.

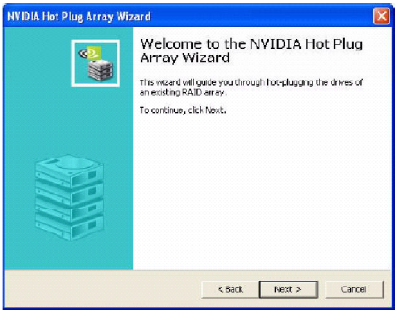
| From | To | New Array Disk Requirements |
|---|---|---|
| RAID 0 | RAID 0 | m > n<br>Number of disks in the new array must be greater than the original array. |
| | RAID 1 | m =2, n =1<br>RAID 1 array must include two disks, converted from a one disk RAID 0 array. |
| | RAID 0+1 | m >= 2 x n<br>Number of RAID 0+1 disks must be equal to or greater than twice the number of RAID 0 disks. |
| | RAID5 | m >= n+1 |
| RAID 1 | RAID 0 | No additional restrictions. |
| | RAID 1 | ** Not a valid combination ** |
| | RAID 0+1 | No additional restrictions. |
| | RAID 5 | m >= 3 |

## Hot Plug Array

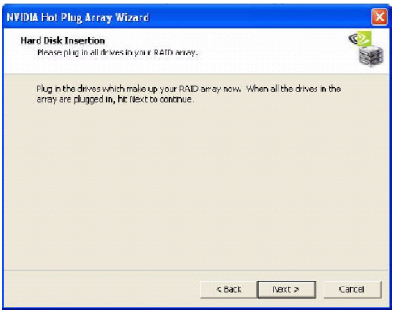
With respect to RAID, hot plugging is the ability to add a disk to a system safely and without causing problems for the RAID software. For example, when a drive in a mirrored array fails, the user can launch the Hot Plug Array Wizard which instructs the user as to when a drive can be safely added to the system. As soon as the drive is added, the user can then finish running the RAID wizard and the drive becomes usable by the system. Hot Plug Array allows the user to add or remove an entire array without degrading the array in the process.

NVRAIDMAN can be used to hot plug a RAID disk. To hot plug a disk, simply do the following:

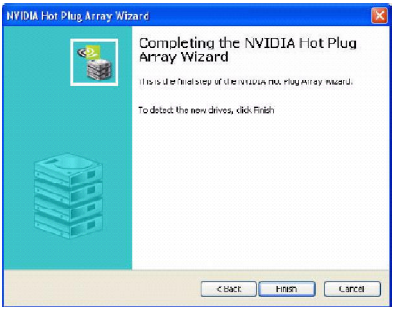
**1** Launch NVRAIDMAN and click on “Hot Plug Array” and the following screen shot will appear:


NVIDIA Hot Plug Array Wizard
Welcome to the NVIDIA Hot Plug Array Wizard
This wizard will guide you through hot-plugging the drives of an existing RAID array.
To continue, click Next.
< Back
Next >
Cancel

**2** Click **Nex**t and the following screen shot will appear:


NVIDIA Hot Plug Array Wizard
Hard Disk Insertion
Please plug in all drives in your RAID array.
Plug in the drives which make up your RAID array now. When all the drives in the array are plugged in, hit Next to continue.
< Back
Next >
Cancel

**3** Connect the RAID disk that you want to use with any given RAID array.
**4** Click **Next** and the following screen shot will appear:

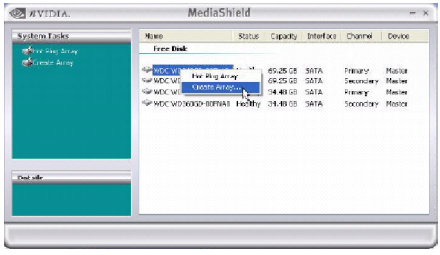



**5** Click **Finish**.

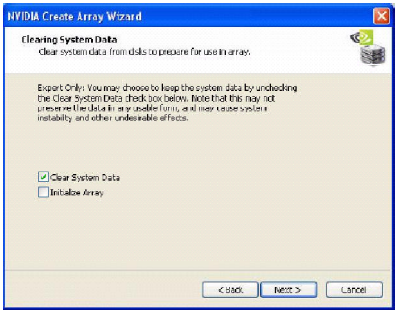
## Initializing a RAID Array

Initializing a RAID array erases all the data that is stored on that array, and writes all zeros to the disks. Initialization of newly configured RAID arrays is recommended to ensure consistency and reliable performance on any supported fault tolerant array such asRAID 5, RAID 0, and RAID 0+1. Use this feature only if you are absolutely sure that you want to wipe out all the data on *that array*.
Initialization of a fault tolerant array can only be done when the array is being created. To initialize an array, perform the following steps:
**Note:** In this example, a mirror array is initialized.

**1** From the NVRAIDMAN window, right click on any available free disk and select **Create Array** as show in Figure below.




**2** The Create Array Wizard opens. Follow the Wizard to create a Mirror array.
**3** At the Create Array Wizard Welcome screen, click **Next**.
**4** At the RAID Array Selection page, make sure that RAID Mode is set to "**Mirroring**" and Stripe Size is set to its default value of 64K, then click **Next**.
**5** At the Free Disk Selection page, select the two drives that you want to Mirror and click **Next**.
**6** Click **Next** again and the following screen shot will appear:


NVIDIA Create Array Wizard
Clearing System Data
Clear system data from disks to prepare for use in array.
Expert Only: You may choose to keep the system data by unchecking the Clear System Data check box below. Note that this may not preserve the data in any usable form, and may cause system instability and other undesirable effects.
Clear System Data
Initialize Array
< Back
Next >
Cancel

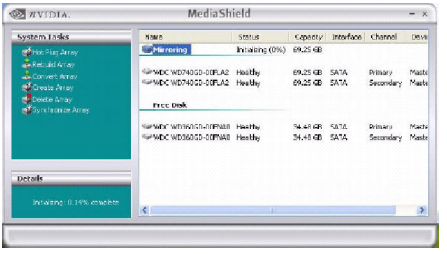
**7** Check "Intialize Array" and then click **Next**. The Initialization Warning dialog appears.

NVIDIA Raid Wizard
All data stored on this array will be erased. If you do not wish to initialize the array at this time, click Cancel.
OK
Cancel

8 Click **OK**. The Clearing System Data screen appears again with the Initialize Array check box checked as shown below.

NVIDIA Create Array Wizard
Clearing System Data
Clear system data from disks to prepare for use in array.
Expert Only: You may choose to keep the system data by unchecking the Clear System Data check box below. Note that this may not preserve the data in any usable form, and may cause system instability and other undesirable effects.
Clear System Data
Initialize Array
< Back
Next >
Cancel

**9** Click **Next**, then click **Finish** at the Completing the NVIDIA Create Array Wizard screen. The NVRAIDMAN windows shows the created RAID array as shown below.




**The Initialization Process**

As you can see from the screen shot above, the initialization process has started and it will be completed in a short period of time. As soon as the Initialization process starts, a popup window similar to the following will appear:

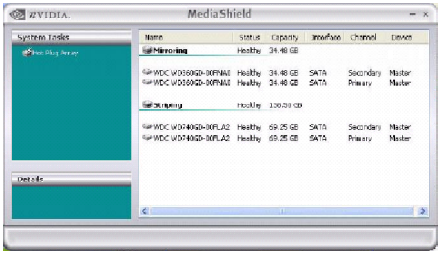
followed by the following pop-up window:

## Rebuilding a RAID Array

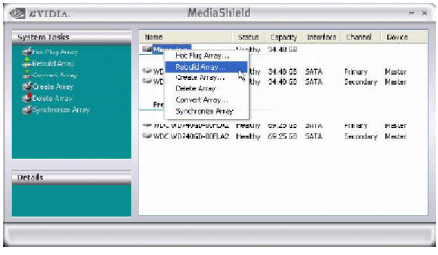
Rebuilding is the process of restoring data to a hard drive from other drives in the array. This applies only to fault tolerant arrays such as RAID 1, RAID 0+1, as well as a RAID 5. For example, assuming you have a three disk RAID 5 array, and one of the drives fail, then you need the lost data on the newly added drive.

### Rebuilding Instructions

After creating a mirrored array, you can rebuild the array using the following steps:
1. Go to Windows and run the NVIDIA RAID Management utility.
The picture below shows an example of a system with one mirrored array and two free disks.



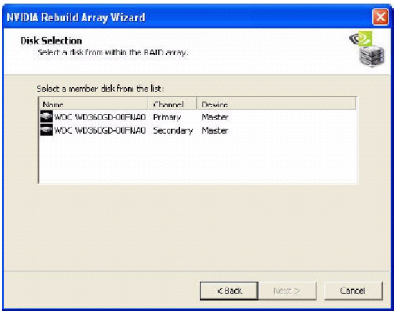

2. Right-click on Mirroring. The popup menu appears.



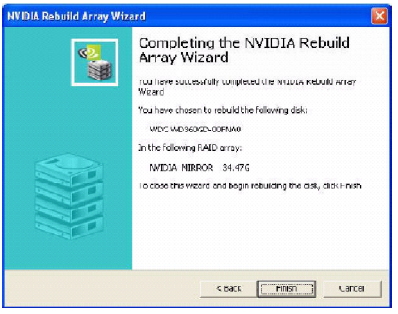

3. From the popup menu, click **Rebuild Array**. The NVIDIA Rebuild Array Wizard appears.

NVIDIA Rebuild Array Wizard
Welcome to the NVIDIA Rebuild Array Wizard
This wizard will guide you through assigning a new disk into an existing RAID array.
The NVIDIA RAID solution allows you to rebuild a new mirrored data copy while the system is up and running, without disrupting user and application access to the data set.
Rebuilding an array can take up to a day to complete. This operation occurs in the background and will not impede your work. If you need to shutdown the computer, the rebuild will continue where it left off when you restart.
To continue, click Next.
< Back
Next >
Cancel

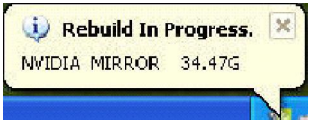
4. Click **Next.** The Disk Selection page appears.




5. Select the drive that you want to rebuild by clicking it from the list, then click **Next**. The Completing the NVIDIA Rebuild Array page appears.

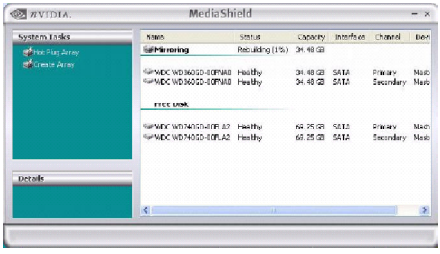



6. Click **Finish**. The array rebuilding starts after a few seconds, and a small pop-up message appears towards the bottom right corner of the screen as shown in the figure below.




When the rebuilding process is finished you will see the pop up box shown in Figure below.

During the rebuilding process, the NVRAID Management utility screen shows the status under the System Tasks and Details sections.




**More About Rebuilding Arrays**

***• Rebuilding Occurs in the Background***

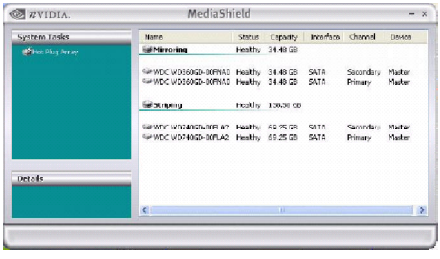
The rebuilding process is very slow (it can take up to a day) and occurs in the background so as not to affect the performance of the system.

***• Rebuilding Applies Only to RAID 1/ RAID 0+1 or RAID 5 Arrays***

Rebuilding an array works only when using RAID 1 , RAID 0+1, or RAID 5. Rebuilding does not apply to RAID 0 and JBOD arrays.

***• Rebuilding applies to a degraded fault tolerant array***

You can rebuild a degraded mirrored array using any available Free Disk or Dedicated Disk. For example, Figure below shows a mirrored array using two 34.48 GB drives while having two Free Disks each 55.90 GB large.




To use one of these available free disks to rebuild your array, follow the same steps as explained in “Rebuilding a RAID Array” on D-22, except when prompted to select a disk, choose one of the two available free disks.

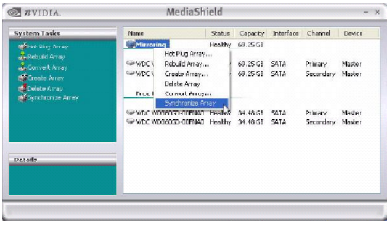
## Synchronizing a RAID Array

Synchronizing an array will force a rebuild of redundancy or parity. The operation is applicable to any fault tolerant array such as RAID 1, 0+1 and RAID 5.

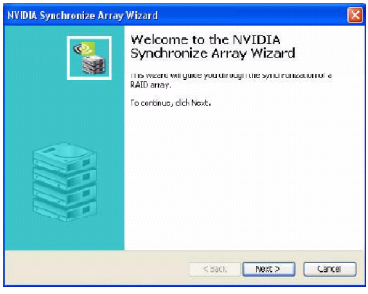
- For RAID1 and RAID 0+1, “sync” results in copying the data to the redundancy disk,
- For RAID 5, “sync” results in rebuilding the parity

To sync an array, do the following (This example assumes you have already created a fault tolerant array such as RAID 1):

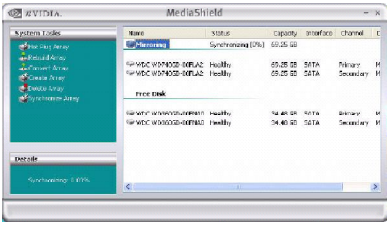
1. Right click on “Mirroring” and select **Synchronize Array** as shown in Figure below.




2. The Synchronize Array Wizard Welcome screen appears.




3. Click on **Next** and then click **Finish** at the Wizard Completion screen. The NVRAIDMAN window indicates that the array is synchronizing, as shown in Figure below.




As you can see from the screen shot above, the synchronization process has started and it will be completed in a short period of time.

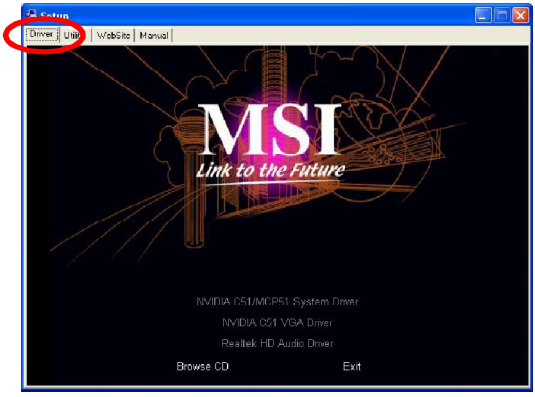
# Appendix D
# nVidia System Driver

MSI provides a setup CD along with your mainboard, which contains the required drivers for your system, and many other useful and powerful utility to bring you the best experience for your office professional working and for your home leisure entertainment.

MSI
MICRO-STAR INTERNATIONAL

# nVidia System Driver Installation

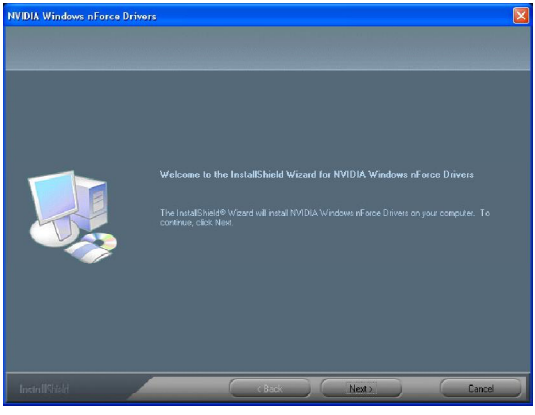
Click on the **Driver** tab and the screen below will display.



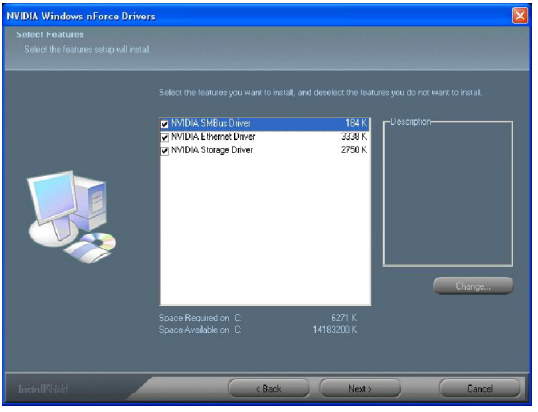

## NVIDIA System Driver

This driver is only available for Windows 2000 and Windows XP operating system. Please follow the following step to install the driver correctly.

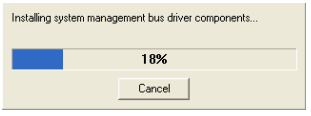
1. Click on the **NVIDIA C51/MCP51 System Driver** button to install the NVIDIA System Drivers for your Windows OS. Then the welcome dialogue will display. Click **Next** to continue.


NVIDIA Windows nForce Drivers
Welcome to the InstallShield Wizard for NVIDIA Windows nForce Drivers
The InstallShield® Wizard will install NVIDIA Windows nForce Drivers on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

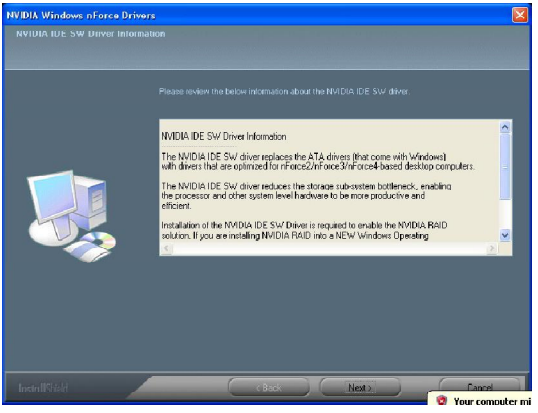
2. Then the following screen displays the available components to install. All the components shown here will be selected to be installed by default. Then click **Next**.


NVIDIA Windows nForce Drivers
Select Features
Select the features setup will install.
Select the features you want to install, and deselect the features you do not want to install.
NVIDIA SMBus Driver 184 K
NVIDIA Ethernet Driver 3338 K
NVIDIA Storage Driver 2750 K
Description
Change...
Space Required on C: 6271 K
Space Available on C: 14183200 K
InstallShield
< Back
Next >
Cancel

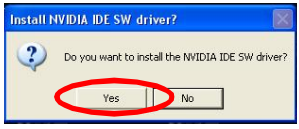
3. The system will start installing the selected driver components automatically.




4. Then the following screen displays the information for the NVIDIA IDE SW Driver installation. Click **Next** to continue.


NVIDIA Windows nForce Drivers
NVIDIA IDE SW Driver Information
Please review the below information about the NVIDIA IDE SW driver.
NVIDIA IDE SW Driver Information
The NVIDIA IDE SW driver replaces the ATA drivers (that come with Windows) with drivers that are optimized for nForce2/nForce3/nForce4-based desktop computers.
The NVIDIA IDE SW driver reduces the storage sub-system bottleneck, enabling the processor and other system level hardware to be more productive and efficient.
Installation of the NVIDIA IDE SW Driver is required to enable the NVIDIA RAID solution. If you are installing NVIDIA RAID into a NEW Windows Operating
InstallShield
< Back
Next >
Cancel

5. Then the following screen displays the installation of NVIDIA IDE SW Driver. Click **Yes** to continue.

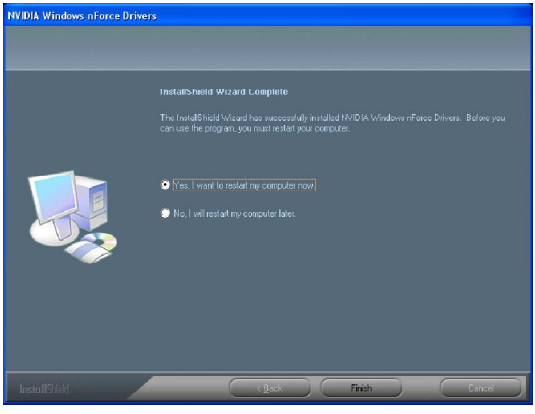



## Important

The installation of NVIDIA Firewall and ForceWare Network Access Manager. It is a software firewall to protect the softwares from hacking. However, it is strongly suggested that you do not install this component. *Please follow the instruction below to make a software firewall CD for yourself.*

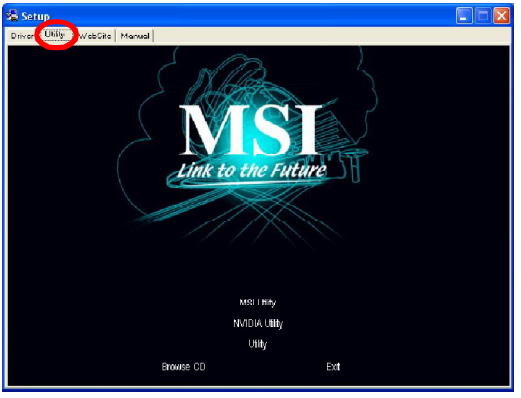
*1. Insert the MSI CD into the CD-ROM drive.*
*2. Ignore the Setup screen and use "Explorer" to browse the CD.*
*3. In the* ***\\nVidia\Firewall****, double clicking the "NAMSetup" file to install the software.*
*4. The driver disk for software firewall CD is done.*

6. The following screen indicates that the installation is complete. Click **Yes** to restart your computer or click **No** to restart it later.

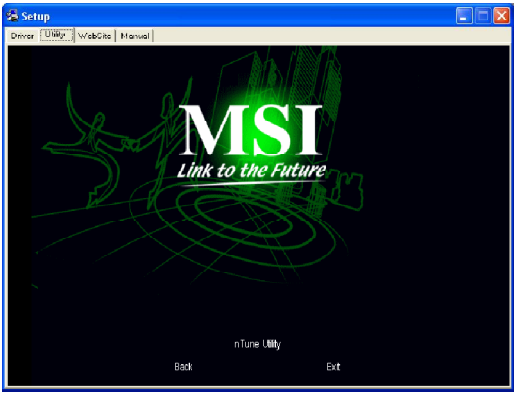

NVIDIA Windows nForce Drivers
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed NVIDIA Windows nForce Drivers. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
< Back
Finish
Cancel

## nVidia Utility Installation

1. Click on the **Utility** tab and the screen below will display.




2. Then click on the **NVIDIA Utility** tab and the screen below will display.




3. Click the nTune Utility icon to install it.

**NVIDIA nTune Utility** - provides a safe and easy way to optimize PC performance.